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SCENES at a FAIR.

TRAVELS INTO CHILE,

OVER THE ANDES,

IN THE YEARS 1820 AND 1821,

WITH SOME SKETCHES OF THE PRODUCTIONS AND AGRICULTURE; MINES AND METALLURGY; INHABITANTS, HISTORY, AND OTHER FEATURES, OF AMERICA; PARTICULARLY OF CHILE, AND ARAUCO.

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Illustrated with Thirty Plates:

PLANS OF SANTIAGO, THE CAPITAL OF CHILE; AND OF THE POST ROAD ACROSS THE PAMPAS: ITINERARIES, &c.

BY PETER SCHMIDTMEYER.

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TRAVELS TO CHILE,

OVER THE ANDES.

INTRODUCTION.

Fundos Aufidio Lusco Prætore libenter
Linquimus, insani ridentes præmia scribæ,
Prætextam, ...

HOR. *lib.* i. *Sat.* 5.

WHETHER you be very indulgent or not, my Reader, I shall be happy to have the benefit and the pleasure of your company in travelling to Chile; but, lest you should afterwards regret your choice, I think it my duty, to do myself the honour, before we start, of introducing him to your acquaintance and knowledge, who offers to conduct you to that Country and to bring you back again: and although to be conveyed in a book, be attended with less delay and expence, fatigue and danger, than by other modes of travelling, yet as you might ultimately find that, even thus, too much of all was required for the pleasure and information afforded, I must bring down your expectations to a proper standard by stating,

that if you are willing that I should take you along with me, this is my first attempt to conduct any one in a public conveyance of this kind; that your intended fellow traveller is a man of rather superficial than deep knowledge; that as his object, in going to South America, is not that of scientific observation, you will perhaps be hurried on, just where you may wish to stop, and without the benefit of information, when you may most desire to have it; and that another disqualification, which will also tend to lessen, or perhaps altogether prevent, the interest and pleasure which you may anticipate from your intercourse with him, is some impediment of speech.

Another consideration, and one of an important nature, is the danger of disagreeing and even of quarrelling, which frequently accompanies long travels, and may more particularly await us in crossing the continent of South America, a journey tending to shake the constitution and raise the bile. Against a misfortune of this kind it is also my intention to warn you, and, as much as lays in my power, to provide. This cannot be done during the sea voyage, because in a small vessel, we cannot well make our escape from each other: but here, a hard gale of wind, a mast going over the board, some vessel running foul of us, or some poor fellow washed into the sea, are occurrences and misfortunes which may be anticipated; and I rely on their usual effect in softening that mental and physical irritability, which is often caused by some supposed failure in expected attentions, or from differences of opinion; or even from a mere atmospheric change. Under their influence, had we separated as much as the sides of our ship allowed it, we should soon unite again; and the gradual operation of this attraction would be the means of affording to any attentive observer of human propensities on board, some entertaining exhibitions and useful knowledge, of which we ourselves might afterwards take the benefit, although mixed perhaps with much mortification, when our judgment, cooled and improved by reflection, would enable us to discover, that our intended display of manly dignity was nothing more, than the effervescence of some boyish qualities in grown-up children. In travelling across the South American continent and over the Andes, there, will certainly be space sufficient for an effectual separation, if you should

think that necessary; but I would not recommend it, as it might endanger our mutual safety, and in case of accident, make us both regret it: nay, if you join me, I shall consider that my duty is to prevent it if I can, by urging you on as expeditiously as possible, in order that you may bear a little longer with any feelings of fastidiousness. But in Chile, your leaving me, as Horace and his party left the scribbler Aufidius Luscus on their way to Brundusium, will not be attended with any such inconvenience; particularly if it be in the City of Santiago, the capital of that country, where you will find a good English hotel, hospitable and genteel society, an interesting scenery, and many opportunities of returning to England, although the conveyance may not be so cheap or expeditious as mine. There then, after having seen a little of the country and its mines, if you should like to return with me, I shall feel happy to have the additional honour and profit of your company, and the cost of mine will be the subject of a new agreement between us.

I trust that, after such an introduction, whatever be the share of indulgence which you may kindly grant me, you will not think me guilty of too much presumption. What information I cannot afford, I hope to obtain from a better source than mine: but, that I may have a greater chance of success in this, some presumption must be allowed, and may the more readily be suffered on the consideration also, that it is a very tenacious part of human nature. I only wish, that you may not find too great a licence given to that natural disposition in scientific schoolboys, which, arising from superficial knowledge, leads them, when just emerging from the darkness of ignorance and skimming the cream of philosophy, freely to give their opinion on the contents of the bowl; whilst their masters think it necessary, not only to drink also the milk of it, but even to run often the risk of being lost in investigating the turbid sediment. It will be my duty, as it is my wish, whilst we are travelling together, to afford what little information and interest I can: but in such an attempt, I would rather rouse to action than lull to sleep, as I should think it a good purpose answered, if some person of extensive knowledge, no longer able to bear that so much should have been offered to read

concerning Chile, and so little to know, were himself induced to go and survey a country, which, I doubt not, would be found highly interesting to a naturalist, and greatly tending to promote the progress and pleasure of science.

If after all this warning, you still be willing to join me, we will forthwith embark for Buenos-ayres, in a small vessel so full of passengers that we cannot fail, in that contracted circle of human life, to witness scenes which will increase both our knowledge of it and that fund of interest, from which, with good management, may be drawn some supplies of pleasure for a more advanced age, if we should be permitted to attain it.

CHAPTER I.

At Sea.

FROM ENGLAND TO BUENOS-AYRES.

Achilles' wrath, to Greece the direful spring
Of woes unnumber'd, heavenly Goddess, sing!

POPE'S ILIAD.

IN January 1820 and in the British channel, our ship, the Achilles, of about two hundred tons burthen, bound from London to Buenos-ayres, and the brig Catherine, bound from Buenos-ayres to London, ran foul of each other at about dawn of day. To render such an occurrence truly singular, was only wanted the name of a Trojan hero or heroine to our opponent. The shock was such as Homer is stated to tell those who can read Greek, once took place between Achilles and Hector at the siege of Troy. Our bowsprit was knocked off, some part of the bows, but fortunately above water mark, were staved in, and it became necessary to dry-dock the ship at Cowes in the isle of Wight, in order to repair her. This very beautiful island did not appear to me in so high a state of cultivation as I had expected to find it. Its sea views and scenery are of the finest kind. But the multiplicity of public conveyances is now so great and the fares are so low, that a traveller has no longer the same means as formerly, to combine the length of his narrative with its novelty.

We left Cowes on the 28th of February, having cause to fear that the master of our ship, was not a man by any means fit to promote our safety and comfort during the passage. We were ten cabin passengers, two of whom were married ladies with their husbands, and one a single lady. Next to us, in the steerage, a small place

fitted up for the purpose, and with a few inches of room for each to move in, contained two married couples and five or six single passengers: so that with the master and his mate, the cabin and the steerage contained a very full cargo. Two or three nights after our departure, the war broke out between the master and the cabin-passengers, the cause of which was a few sacks of biscuit-bread. Some such have often occasioned it among nations, and made blood flow copiously; no one can therefore wonder at the quick effect of provocation and anger within so short a reach. The commencement of hostilities went against us. We had often requested, but in vain, that the bread, which had been left in our cabin, might be removed from it; and at last we resolved that it should be so, and that main force should be used. Nothing could exceed the gallantry with which the sacks were grappled with and thrust out into the gang-way, so as to block up our own passage and that of every one else. The master, hearing of this, brought up part of his main body, and ordered some picked men to bring the bread in again: at this moment we all gave way, although there were many young man-of-war's men with us, who were going to Chile in quest of profit or comfort; and the sacks were once more lodged in the cabin, where they stood before. But we did not lose any ground, and each party, feeling the want of recruiting his strength, went to rest.

On the 6th of March, in latitude about 33° N., we made the Madeira, and on the 9th early in the morning, in about 28° N., the Canary islands, between some of which we passed, admiring the scenery which they exhibited. The weather was fine: the lower clouds were moving along the hills; the upper, on and off the peak of Teneriffe, which rises 12,200 feet above the level of the sea, and a considerable part of which was covered with snow. The sea looked magnificent, and the name of "Fortunate," given by the Ancients to these islands, seems well bestowed: but the water wanted the animation of some intercourse between them; and the land, of some forests on their mountains: both appeared too much deprived of life.

On the 16th of March, in latitude about 16° N., the Cape Verd islands were thought in sight, and on the 23d we passed the equator, having had a very quick

run to it. A few nights previous to this date, the sea wore a most magnificent appearance: the waves were running high under a fresh breeze, and all their curling tops were luminous, having the effect of a dark tract of ground, studded with patches of snow emitting a white light. But the most brilliant exhibition was round the ship, which appeared as swimming through a substance very like glass when running out of a smelting furnace, with numberless particles like stars outshining the rest; and this appearance continued far astern, in the track of the vessel, gradually decreasing in brilliancy: the sky was overcast, and the atmosphere felt as if loaded with electricity. The following night, with a sky and an atmosphere nearly the same, the sea resumed an appearance of the like kind, but with less splendour; and a night or two afterwards, it gradually subsided until the exhibition ceased. I had often witnessed the effect produced at sea by luminous insects, but never with so magnificent a scenery; and by attentively following it, from decreasing daylight to dusk and from dusk to darkness, I should be led to suppose, that it was also connected with a peculiar state of the atmosphere.

Several of our fellow passengers were dissatisfied with their own country, and in search of a better; which is often with many, the most effectual or indeed the only way, of knowing and appreciating a native land. Light skirmishes had continued between the master and the passengers, but the flames of war had extended, as if a new box of Pandora had been stowed on board our vessel and broken open. The steerage passengers, who were already at variance with the charterer of the ship, also a passenger in her, were gradually drawn into a state of open warfare with most of the inhabitants of our cabin, by various misunderstandings concerning each other's possessions, rights, and privileges, but particularly because one of us, who was a most strenuous advocate for more extensive freedom in his own country, insisted that they had no right to walk or stand on the quarter deck, the exclusive enjoyment of which only belonged to us. Discord, not satisfied with this, blew also some sparks into the steerage, which soon increased to a blaze; and a wife, a daughter of Bellona, whose husband, a son of Mars and of Freedom also, liked his own power and liberty

better than her's, had her face one evening so blackened by the fiery metal put forth by both, that she was under the necessity of keeping her *room* a few days. But the cabin passengers remained united: the ladies were of pleasing and amiable manners: we had a fare almost sumptuous, which was highly agreeable to some of us: my messmates formed a cheerful society, and the daily occurrences of the wars on board were the subject of much conversation and interest.

On the 29th of March, a squall carried away our fore top-mast. The weather had been bad some days, and thunder storms, in restoring to the atmosphere its equilibrium, had also contributed to our peace: passions were again, and during a short time, equipoised Among the passengers were some good carpenters, by whose exertions chiefly another mast was got up, and all lent assistance, as the few seamen on board were hardly sufficient to do the duty of the ship, which was old and not in the best order.

On the 5th of April, being in latitude 20° S., and still in the midst of storms and squalls, we saw a water spout a few miles from us, which lasted twelve or fifteen minutes from its formation to its bursting: it reached about midway to the sea from the dense clouds with which it was connected; and when it burst, looked as if holes had been made round its lower end, in a few circles at regular intervals from each other, in order to discharge its contents, which issued copiously and beautifully: after this, there only remained a faint form of the spout, which was incorporated with the cloud above it, and whose appearance might be compared to that of a large snake, which, having let part of his body down from a cloud, was again drawing it up into it, after spouting water from a head perforated for that purpose. The effect to our view was not that of the water rising from the sea to the spout, but of falling from the spout to the sea. The annexed plate is from a sketch taken shortly after its bursting.

On the 8th of April, we crossed the Tropic of Capricorn. Between this and the Tropic of Cancer the sky is often most beautiful, particularly at the rising and setting of the sun or moon; and the edges of clouds are frequently rendered strikingly lucid

by the planet Venus alone; they generally appear so hard round the horizon, are of such fanciful forms, and often bear so complete a likeness to mountainous land, that the most experienced seaman, even at a short distance, is deceived by it: as they rise, their edges become smooth and soft; but even very high and small clouds, forming a sky *pommelé*, have here a dense, and at the same time soft, appearance, usually assuming very fine and delicate featherlike forms.

The mean of the daily heat in the northern Tropic was 77° of Far. in the shade; and that of the southern 82°. The heat of the water near its surface was, in its mean, very like the above mentioned. The sun had just left the southern Ecliptic.

On approaching the equator, seamen will divert themselves in going up the main mast, and making some inexperienced boy or man on board believe that they can see the line, inviting him to come up and look at it. On crossing it, some stout man, of a characteristic countenance, paints his face, puts on a kind of Grecian dress, and becomes the god Neptune by whom the master is superseded in the command. Then a large cutlass, mounted in the shape of a razor, is used by the carpenter for roughly scraping the face or beard of any one who has not crossed the line before: this is followed by copious ablutions with buckets full of water. Whilst the operation of shaving goes on, some precepts are delivered to the patient, the chief tendency of all which is, that of their first instruction to him—never to drink weak grog or beer when he can get them strong.—Passengers may escape, with the fine of a bottle of rum. Sometimes Eolus and the Pleiades intrude on the ceremony, and spoil the sport.

On the 9th of April, in latitude 26° S., our fore top mast was again carried away, as were also a studding sail and boom. An old condemned top mast on board, got ready by the passengers and crew, was rigged again in a few days.

The state of the war was observed very much to depend on that of the atmosphere, and the noise of hostilities generally subsided, in proportion as that of the wind increased; circumstances which cannot occasion surprise to those who have observed, how an atmosphere, more or less genial to the constitution of man, will often tend to render his first impulse better or worse disposed towards his kind; and

how apt he is by nature, to raise or lower his voice gradually more, as that of a dreaded opponent takes a contrary course. Some challenges had taken place to single combat, on the forms prescribed by the Grecian and Roman wrestling schools, or by the late improvements on them of pugilist Belcher and his antagonists; but they had not led to any fatal results.

The master of our ship had very frequently been, since our departure, in a state of more or less intoxication, affording a most striking instance of the degradation to which man is reduced by this unfortunate habit, which now causes so much misery, so many quarrels, and so large a share of domestic infelicity in many, if not in most, parts of the world. The wild beasts and the meanest insects are dignified beings, when placed by the side of a man sinking under the effect of that indulgence by which he loses his reason, his strength, and often the power of being guided by some faint gleam of instinct; both his mind and his body reeling out of the right way, into one of the darkest, foulest and most dangerous paths that can be entered on earth. Our master exhibited these effects with painful impressions; and a conviction of the unfitness and danger of such a commander, as also the already crippled state of the vessel, led all the cabin passengers, who had already united with those of the steerage, in order that one of each gang should join the crew in keeping night watches, to adopt the resolution of furnishing the mate, a steady active and sober man, with a written declaration of our opinion on the incapacity and misconduct of the master; on the inadequate number of the crew, which consisted of five men and two boys only; on the precarious state of the ship: and of our determination to use all our endeavours, in order that the mate should as much as possible have the management of her; to continue our personal exertions, and to assist the crew in performing duty.

One night, one of our messmates, who had been in the Royal Navy, was well acquainted with navigation, and was keeping watch holding a glass of grog in his hand, shewed to the man at the helm that the ship did not lay her course. The master, who was not far off, hearing this, contradicted him in language the most offensive; on

which the other dashed the contents of his glass at the master's face, and not finding him at arm's length, the glass itself came in contact with his mouth and made it bleed copiously. We went upon deck, and the master appeared disposed to take this rather quietly than otherwise: he complained of the treatment and was answered that giving the lie, particularly when he himself was in the wrong, was no trifling offence: but an hour or two after we had again turned in, having been plied to grog and retaliation by some other passengers, he began to use such loud and threatening language, that we easily suspected what was intended, and made fast the cabin door: when he came down to demand the surrender of the person who had struck him, the latter, having a loaded gun in his hand, answered that if he attempted to force his way in, he should be shot. Thus ended this affair for the night. The next morning, wishing to combine as much as possible, what peremptory steps our own safety might sometimes require, with the preservation of subordination on board the vessel, matters were adjusted between the two parties; but as there was not on this occasion any of that strong cement, common interest, which so often serves to bind together men or nations of feelings naturally repulsive and hostile to each other, this was only a suspension of arms and not a peace.

On the 17th of April, began to blow one of those violent gales, called *pampéros* from their passing over the pampas or plains extending to the south and westward of Buenos-ayres; and in the night, we lost both our main and our fore top masts. A poor seaman, whose cries for help were heard far astern, was also lost the same night, and another very nearly so. On the 21st, the weather being still very bad, our fore mast sprang; and as the master had remained in his cabin days and nights during the last foul gales and weather, and much of that time in a state of intoxication, we contrived to get a keg of gunpowder out of his reach, fearing lest accidentally, by smoking or otherwise, he should set fire to his birth and blow up the ship: but we left some in his powder horns, that he might not say that we had disarmed him. The bad state of the vessel, the continuance and violence of foul winds, and the threatening aspect of the sky, had caused a total suspension of

hostilities, and the passengers might be represented at this time, as having gone into winter quarters.

On the 25th of April, we entered the great river Parana, so called before it was discovered by the Spaniards, who named it "de la Plata," on the ill-grounded supposition that silver existed in abundance in the neighbourhood of its banks; but afterwards rendered worthy of the new appellation, by the considerable quantities of that metal received at Buenos-ayres, chiefly from the mines of Potosi and upper Peru, Uspallata and Chile, and floated down it to Spain. A ship from the Clyde coming up with us, a boat was bought of her, for the purpose of informing two British men of war, the Superb and the Vengeur, then in Maldonado, of our situation; a measure to which I declined agreeing, as I feared that as soon as the boat should be along side, all our most useful hands would leap into it, almost all my fellow passengers appearing very anxious to go and see their friends and countrymen on board the men of war. This was the case. The whole of those who had been of real service in assisting the crew by their knowledge of navigation, and whom we could not safely spare, got into the boat; and there were left on board, with the ladies, a crew totally inadequate to the service of the vessel, and some passengers who could be of no effectual assistance. As soon as the boat was out of sight the master took the helm, and appeared resolved on resuming the management of his ship, which he had for a long time tacitly resigned to the mate, and some of our small crew behaved in a manner which made us fear a mutiny. Amongst the passengers left on board were some, who had been very hostile and mischievous to those of the cabin during the passage, and who, late the next day, the boat not having returned, indulged their perverse disposition by stating within the hearing of the ladies, that it must have been lost on breakers where the surf was seen beating very high; a wicked conjecture which, as their husbands and friends had gone in it, made them cry and distressed them bitterly. Had the wind at this time shifted to an adverse point and blown strong, we must have gone out to sea again, with hardly any chance left of weathering a gale, or of a proper conduct of our vessel. But at night

the boat came back, and the commander of the Vengeur shewed us very great attention and politeness. We dined on board the man of war, and in the evening dancing took place on the quarter deck. She was just going to Montevideo, and as a strong favourable breeze sprang up at night, our party remained in her. Poor fallen Achilles was then towed in his turn, his body being fastened to that of a more powerful man of war and dragged to Montevideo, a distance of ninety miles, at the rate of twelve an hour.

The whole of this the northern bank of the river, from Cape Mary to Montevideo, is now annexed to Brazil. Encouragement is given to settlements at Maldonado, the soil of which is very fertile, and which lies in a situation that might afford considerable advantages, were it not for many circumstances which at present militate against the welfare and comfort of foreign settlers, and may not be soon removed. The population of Montevideo and its environs, which in the beginning of this century was estimated at more than fifteen thousand souls, is stated to be now reduced to a third part of that number. The seal fishery about the little island of Lobos is not likely to yield many years longer, from the great destruction of these animals. The bank is hilly to a considerable extent, with some small mountains in appearance of conical forms, and it becomes flat and low as it stretches from the mountain near the last mentioned town, towards the great river Uruguay. It has a barren aspect and a brown tint which are not gratifying; yet its scanty pasture maintains many herds of cattle, and considerable exports are made from hence, of hides, tallow, dried beef, and mules. The southern bank of this river is very low, and, I believe, does not possess any convenient situation for shelter or settlement until it reaches Ensenada and Buenos-ayres, where vessels are not however fully protected from the violence of the pampero or south west wind.

At Montevideo, we were left to continue our voyage up the river, with a considerable addition of officers and men from the Vengeur, and some temporary repairs; the commander of that man of war having carried his attention to a personal

inspection of our vessel and of its crew. Near Buenos-ayres and at night, going at the rate of seven or eight miles an hour, some lights on the southern bank of the river were mistaken for those of the Owen Glendour frigate, then in the roads; and we struck very hard, but on a very soft bottom, entering deep into the mud, in which we were kept fast nearly three hours, with very disagreeable sensations to many of us, as, almost every moment, the ship heaved as if she were going to open. The wind very suddenly and fortunately shifted, and blowing hard from the shore, with the assistance of anchors and of our numerous crew, we got off and arrived in the roads of Buenos-ayres on the 1st of May; glad to take leave of our Achilles, whose fate was not, this time, to be destroyed by the treachery of a Paris, but by a violent openly dealt blow from a pampero, which drove and scattered his limbs shortly afterwards on this shore.

The frequency of disagreeable incidents during our passage, had been, to the three ladies who had enlivened the society of our cabin, the cause of much inconvenience, often of alarm, and sometimes of illness, all which they bore with a placidity of mind, an equanimity of temper, and a good humour, seldom so well mastered and displayed on these occasions. The several objects of each passenger's pursuit now filled the mind, as the wind had filled the sails of our vessel. The scenes of the passage were left behind with the stage on which they had been acted, and appeared at a distance as the early days of school and boyish age. Every one of us, fraught with the importance of his own schemes, was anxious to know the import also, of the circumstances by which they were to be influenced. A few steps would perhaps spread, over the prospect before him, a gloomy frown or a cheerful smile. When we take into the mind the anxiety and restlessness of the human race; when we consider how precarious is our existence here; how many have no sooner known what it was, than they have been called upon to part with it; and that the longest stay in this world is but a moment—nay, as nothing, in that endless score to which it belongs, we are filled with astonishment at the almost irresistible power with which every one is impelled, and at the intense eagerness with which he is urging, towards

the attainment of some earthly purpose; and the surprise increases, when each of us sees himself in the number, and perhaps amongst the most earnest in the attempt.

The view of Buenos-ayres, from its roads and at landing, offers nothing pleasing. A long range of low and irregular buildings, behind which you cannot see the continuation of the city, would give to it the appearance of a fishing town, if it were not for two or three steeples which rise above them. The public walk, and some very small unhandsome trees, lie along that range. The river here is shallow, its water is turbid, and the opposite bank, which is low and thirty miles distant, cannot be distinguished. Unsightly carts are employed in shipping and landing both people and merchandise, and numbers of laundresses are in view, washing linen on dirty stones, in the midst of the impurities of the town. But yet, with little expence and the display of some taste, the appearance of this large city, along the bank of the river, might be rendered strikingly fine.

The preparations for travelling over land from Buenos-ayres to Chile, by the way of Mendoza, will require some days, and during this interval, we will take a survey of some of the principal features of South America, which may sometimes lead us into its northern continent, or detain us a little longer, when we shall be following them into the country which we intend to visit.

CHAPTER II.

SOME GENERAL FEATURES.

WE were now in what is very frequently called, the new world. Whether it has any claim or not to this appellation, by having been rendered habitable, or by having been inhabited, at a later period than the other hemisphere, is a question which has given rise to much investigation, to various opinions and speculations, but hitherto to no decision; although the scientific researches of Mr. de Humboldt appear to strengthen the conjecture, that the inhabitants of Mexico and Peru, the most numerous and civilized found in it, either sprang from the eastern parts of Asia, or had at least sufficient affinity with some of its nations, for the inference of a common origin and a long intercourse.

This hemisphere, perhaps equal to our own, was first discovered by Christopher Columbus, a Genoese, in the year 1492; but received its name from Americus Vesputius, a Florentine, who first landed on its southern continent in 1497. In 1500, Pedro Alvarez Cabral planted the Portuguese flag in Brazil; and in 1515, Juan Dias de Solis, sent by Spain, entered the river Parana now de la Plata, with a handful of men, whom he lost with his own life in some conflicts with the inhabitants. In 1526, Sebastian Cabot or Gabot, born in England, the son of a Venetian, being on an intended expedition from Spain to the East Indies through the straits of Magellan, altered his destination, entered the river Plata, and partly subdued the natives near it; but it was not until the year 1535, that Pedro de Mendoza, a Spaniard, founded the settlement of Buenos-ayres, which soon

afterwards became untenable and was abandoned. In the year 1582, the site of it was again occupied by Juan Garay and fifty or sixty Spanish soldiers: and when it is considered, that the natives were here robust and brave, had the knowledge of the country, and safe means of annoyance, it cannot be supposed that they were numerous. A very long time elapsed after this period, before Buenos-ayres became a town of any consequence. The salubrity of its climate, the introduction and gradual increase of European cattle, and the opening of communications and trade, first with the interior, and afterwards with the western settlements in Peru and Chile, made it a large populous and wealthy city; as this was found a safer conveyance for the produce of the rich mines of the Andes, than the navigation through the straits of Magellan.

Peru, high and low, the first being a part of the chain of the Andes, the last below them and on the shores of the Pacific Ocean, was discovered in 1526 by Francisco Pizarro, who, in 1532, made the first Spanish settlement on it, and in that year, sent Sebastian de Benalcazar to the kingdom of Quito, for its conquest, which was effected: and here also, we may conjecture how few the inhabitants in those very extensive countries must have comparatively been, as, at that time, those expeditions did not consist of more than two hundred soldiers, who were found sufficient for acquiring, within the same year, a permanent possession of them.

The Caraccas, a northern part of South America, were discovered by Columbus in 1498, and soon afterwards colonized. New Grenada was conquered and occupied in 1536, by the simultaneous expeditions, of Sebastian de Benalcazar from Quito, and of Gonzalo Ximenes de Quesada from Santa Martha, for that purpose.

Chile had not many inhabitants, but was notwithstanding only very partially subjugated at first, by an expedition from Peru under the command of Diego de Almagro, in 1535; and more extensively afterwards, by Pedro de Valdivia. But the Araucanos, a stout and valiant race, inhabiting the country between the Biobio and some small tribes to the southward of Valdivia, not only checked the further advance of the Spaniards, but drove them back, destroyed their settlements in Chile, and often

brought the invaders themselves to the verge of destruction: their lands are to this day, and in some late public documents of Chile, called, the unconquered country of Arauco. The harbour, however, where the town of Valdivia stands, and a very small tract of land near it, were conquered and held, owing to their natural strength. The large island of Chiloe was first occupied in 1563, by Gamboa and sixty Spaniards, its inhabitants having made little or no resistance.

As to the tracts, between the small tribes adjoining the Araucanos, and the straits of Magellan on the western side of the Andes, and those, more extensive still, from near Buenos-ayres to the same straits on the eastern, they may rather be called unpossessed than unconquered, as they are stated to be but very partially inhabited by some thin hordes. If lands were required for cultivation and the support of a redundancy of population, rather than mines to explore, extensive and fertile spots would no doubt be found there: and if another purpose in view should be, to confer on others the benefit of peaceful arts and of civilization; to promote the knowledge and advantages of the Christian religion, by a gradual exercise and display of the rational faculties in the young, rather than by amusing and overawing the old with mysterious ceremonies and creeds which they cannot comprehend, then a few wild inhabitants would also offer themselves to be taught.

Indeed it is a cause of astonishment, that no settlement should hitherto have been made in that part of South America, where the very tall stout and well proportioned stature of some Indians, particularly of Patagonians, seen both in it and from it, seems to indicate a healthy climate, and where the Andes might also be found to produce gold, silver, and other metals, from both flanks of their cordillera, with their characteristic fecundity. The straits between the southern extremity of this continent and the island of Tierra del Fuego, were first discovered by Magellan in the year 1519, and called by his name.

The Guyanas, after many early possessors and an unsuccessful search for gold, fell chiefly to the Dutch in 1663 or 1667; and the numerous islands in the Charibbean sea, which, with the former, often bear the indefinite name of West Indies, became at

different times the properties of Spain, England, France, Holland, Denmark, and Sweden; but all the largest of them, in the early time of their discovery, were held by Spain.

In Mexico or New Spain, the first landing was made in the year 1518, by Juan de Grijalva, sent by Spain, with about two hundred and fifty men; and this expedition was immediately followed by another, under the command of Ferdinando Cortes, who effected the subjugation of this fine and extensive country, whose population was considerable, and exhibited, in a still higher degree than Peru and Quito, an advanced state of society.

The peninsula of California was first discovered in 1536, by the same Ferdinando Cortes mentioned above; and New Albion in 1578, by Sir Francis Drake. The Russians paid some early visits to the northern parts of that coast; but it was not until the year 1778, that an extensive survey and knowledge of it were obtained, by that celebrated British officer, Captain Cook.

The eastern coast of North America with Newfoundland were discovered in 1497, by Sebastian Cabot, sent by England, the same who afterwards entered the service of Spain and went to the river Plata. France planted the first settlement in Canada in the year 1508. The coast of Labrador was early visited and so named, by the Portuguese, but received afterwards the appellation of New Britain in 1610, from the unfortunate Hudson, who first passed into the bay which now bears his name. Baffin's Bay, from whence the attempts to find a north west passage into the Pacific Ocean have lately been renewed by Great Britain, was more particularly made known in 1585, by John Davis, an English navigator, who gave his name to the straits leading to it, and by William Baffin, in 1616: but as early as the ninth century, according to some, or to others, in the tenth, Greenland had already been discovered and a settlement made on it, by some Norwegians from Iceland.

The Portuguese, established on the great projection of the eastern coast of South America, and the Spaniards, on the skirts of nearly all the rest of a continent still less inhabited and defended in its interior than where their respective settlements stood, had only to trace on a map the boundaries of their new conquests;

and, however wide from each other the spots occupied stood, no other power appearing able or willing to contest the right, they, with some small exceptions, appropriated to themselves the whole of it, in shares which bore some resemblance to the relative proportion and situation of the two mother countries. During three centuries they have held this immense continent, by a tenure nearly similar to that which holds an extensive sea; by a blockade with a few ships; forbidding all others to pass: but the blockade is now raised, and from the ultimate results gained, its having continued so long, has proved a fortunate circumstance to the other maritime powers of Europe. He who has been restrained from getting at the golden land, and from extracting his share of the precious metals obtained from its bosom, or from the keep of its former possessors, has good cause to use the trite but just French proverb, "a quelque chose malheur est bon." Providence seems to have permitted the discovery and premature use of that rich store, and to have encouraged the general race which, in a few years, was run for it, in order to shew mankind, after a long and impressive experience, that a good field of corn and a luxuriant pasture ground, are more permanently valuable than mountains of gold and silver.

South America, in its geography, geognosy, and meteorology, offers some very striking features. The long chain of mountains called Andes, of considerable breadth and enormous height, begins with the land, at the straits of Magellan; extends along the western coast of the Pacific Ocean, within a mean distance of about ninety miles from its shores, until, in the province of Popayan near the equator, and between the second and fifth degrees of north latitude, it divides into three branches, having run the distance of three thousand eight hundred miles: and then, like a river dividing its body of water into three streams, they lose much of their bulk and elevation, or, as it were, only divide them; but, yet unwilling to abandon their course and characteristic feature, the central chain, continuing nearly north, remains the highest, until it sinks in the Charibbean sea, and the other two still appear as its parallel flanks, gradually thrown off; the one to the north east, also losing itself in the same sea; the other to the north west and

along the isthmus of Darien, where it is stated to be only twelve hundred feet high. It soon however rises again; and, in Mexico, the Andes resume very majestic forms, pursuing their course to the northward; but how far, does not appear to have been yet ascertained.

In the middle of this immense chain or nearly so, rise, considerably higher than their mountainous and chiefly parallel flanks, one or more longitudinal ridges; and these alone, in Chile, are called *cordillera* or *cordilleras*. This distinction is perhaps only popular and not scientific, but it is nevertheless very characteristic: it applies to a peculiar part and feature of the chain, which, by its superior elevation, its aspect, and a formation, if not really at least apparently, different from the principal structure of the lower Andes, establishes itself very strongly in the mind. Therefore, after having travelled in the mountains of that country, with the impression of the distinction made by the name of cordilleras, of higher central ridges, having the appearance of sharp, indented or knotty lines, and when reading this appellation applied to chains of mountains generally, in descriptions of America, it requires an effort of some continuance, to bring down their heights to any standard, and their ridges to a common structure, by which the impression received in Chile becomes gradually more faint and confused.

On this higher central chain and at intervals, the lines of ridges or cordilleras are intersected by summits again rising above them, in pyramidal and other forms, many of which are more or less covered with perpetual snow, and are of so great an elevation, that they may rather be described as other high mountains, seated on and along the whole chain, at a smaller or greater distance from each other; although, when viewed from its ridge, they only appear like hills. The greater number of these highest mountains or summits are, in semblance, as so many furnaces, and in reality, the funnels of volcanoes, some still burning; others extinct. A few do not exhibit the appearance of a crater at their top; but it may be supposed, either that it cannot be seen, or that the falling in of the sides has been sufficiently considerable, with the snow lying on their surface, to occasion the rounded and full forms which they

shew; unless it be conjectured, on the other hand, that the fermentation of substances chiefly composing the higher chain, or deeper subterraneous fires, sufficient to raise these higher masses, were not always sudden and powerful enough, for opening in all a wide passage and the crater of a volcano. Between these lofty summits, are also vestiges of great shocks; and by their sides, on the lower mountains, may likewise be seen the remains of smaller volcanoes and of sudden combustion. Thus runs this characteristic and magnificent chain of the Andes, with little interruption, the space of near seven thousand miles, or indeed much farther, if the long range of mountains, now described by the name of stony or rocky, should hereafter be found a continuation of the same kind and character. The mean elevation of this western wall is stated by Mr. de Humboldt to be, in South America, eighteen hundred and fifty toises, or eleven thousand eight hundred and thirty feet; but the statement, according to the note by which it is accompanied, extends only to the Andes of New Grenada, Quito, and Peru: nearly half the chain appears, therefore, still excluded from the estimate; and those of Chile, Arauco, and Magellan, may tend to raise, rather than lower, the mean altitude of the cordillera of South America.

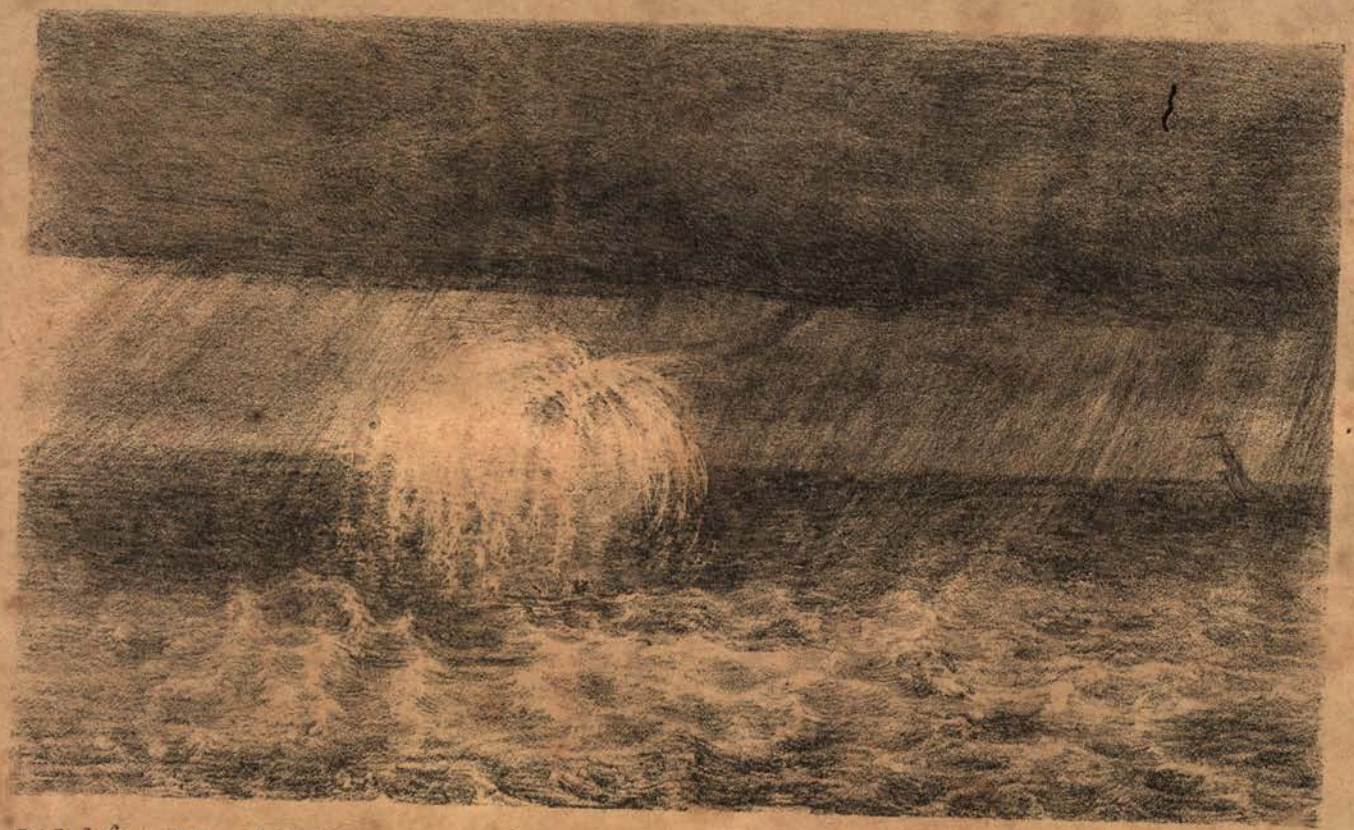
When the traveller is on the Andes, and in some spot where he has cause to think himself surrounded with the remains of extensive combustion, with kilns and furnaces, some rising high in the skies, others a little above the ground near him, some again below him, all either burst open, fallen in, or still erect, and what the snow does not conceal, wearing such an aspect of crude ashy tints and of desolation, that he would think it the work of yesterday; and when he reflects on the quantity of metals already extracted from the flanks of this long chain, he may be tempted to fancy a lighted torch carried from one to the other furnace, the blow of hurricanes as bellows, until the whole is again ignited and in furious action, and Nature at work, roasting the substances necessary for preparing the metallic ores; whilst her little labourers below, in the shape of men, are eagerly engaged in collecting them, and in completing the process, on a scale proportionate to the respective command of powers. The god Vulcan, the master of the furnace of Ætna, might be proud of acting only as a first workman here.

If we now leave for a while the Andes, with the western side of South America, and go to the eastern, we shall find that, in the great projection which forms a considerable part of Brazil, are several chains of mountains of no great elevation, whose ranges are chiefly from south west to north east. They begin at the northern bank of the Plata, and as if they had been entirely cut away by this river, whose southern bank is low and flat, making a part of the great plains called Pampas. As the mountains of Brazil stretch to the north east, and the Andes often to the north west, the space between them becomes wider as we advance northwards. This space consists of immense plains, intersected in many places by longitudinal and latitudinal chains and groups of inferior mountains, but which are, either cut off from the Andes by the winding of the plains one into the other, or too distant, too small, and too little connected with that great chain, to be described as belonging to it, although, in some instances, those small chains and groups may unite with it. The latitudinal mountainous tracts, lying at some distance north and south of the Equator, have been described by Mr. de Humboldt. One of them extends along the coast of Caraccas, from the eastern branch of the Andes, in the tenth degree of north latitude, to the point of Paria; throwing its waters into the Charibbean sea on the north, and into the Oronoko on the south. Another tract of small mountains, consisting of a collection of granitic groups separated by plains, is called by Mr. de Humboldt the group of *Parime*. These mountains lie in the parallels of 3° and 7° of north latitude; and a plain, two hundred and forty miles wide, intervenes between them and the Andes: they divide their waters between the Oronoko on the north, and the great river of the Amazons on the south, extending themselves towards the French and Dutch Guyana. It was in the tract of Parime or near it, that so many expeditions were formerly undertaken in search of a mountain called el Dorado, and of a supposed great city named Manoa, the one being reported to be made of gold; the other, to be full of it. A third tract of latitudinal mountains lies between 16° and 18° of south latitude, extending from the Andes to Brazil; and, as it is also described as a group rather than a chain, we may conclude that the plains often continue to pass through it one into the other.

The mountains forming this broken chain, called of *Chiquitos*, are not high, nor do they yet appear to be much known: they divide their waters between the Amazon on the north, and the river Paraguay, afterwards Parana and Plata, on the south; and it will be observed by the course of this river, which is from north to south, as also by that of the Uruguay, that the other chains or groups of small mountains are chiefly longitudinal, having likewise very extensive plains between them, until, between the parallels of 33° and 33° 30′ of south latitude, they end; in the east, with the northern bank of the river Plata, and in the west, with the extremity of the mountain of Cordova and the Punta of San Luis, when they leave to the plains a more boundless extent, far to the southward, and towards Patagonia where the ground becomes hilly.

The great rivers of South America, we have already seen, are the lower Oronoko; the Amazon, the largest and most majestic of all; both flowing from west to east, between latitudinal groups of mountains; the Paraguay which unites itself with the Parana; and the Uruguay; these three having a longitudinal course to the south, like that of the mountains between which they flow: but it is more for the help of perspicuity, in presenting some of the principal features of South America, that those rivers are described as running between mountains, because, shortly after leaving their sources, they enter into plains of immense extent on each side their banks, with the exception of the latter, along which the plains are more confined in breadth.

It becomes here worthy of remark, that the rivers Paraguay and Parana, although flowing fifteen hundred geographical miles from north to south, nevertheless receive most scanty supplies from the Andes and the lower mountains nearer to their western banks; that, during that space, those masses, of such breadth and extraordinary height, seem to deny those contributions of water which, under an ordinary climate, might be expected from them; and that these rivers are principally supplied, either from the center of South America and longitudinal streams, or from the east and the mountains of Brazil. If we follow Mr. Helm in his journey to Potosi, the space of eleven hundred and fifty miles, on the western side of those rivers, we shall find that, at Cordova, there is not water sufficient to work the mines; that, from thence to Salta, he only crossed a few



Sketched from Nature by P.S. *Drawn on Stone by A. Aglio.* *Printed by N. Chater & Co*

WATER SPOUT.

Seen on the 5th of April, 1820, in the Atlantic Ocean, in Latitude 20 Degrees South.

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mountain torrents without bridges, and the dry bed of a river, the ground being barren and desert, with only one kind of plant, a small tree; that, at the latter place, the woods ceased, and vegetation only appeared again on the top of high mountains; and that, from Salta to Potosi, although the mountains rose in height, yet there were no woods; a beam, sixteen inches square and thirty four feet long, costing in the last town two hundred pounds! and yet there is no reason to doubt, but the soil be as fertile in this tract as in the rest of South America. We shall soon learn the proximate cause of this scarcity of rivers and water, the reverse of what might have been conjectured; as a small piece, of the size of Swisserland, cut off from the Andes and placed in the climate of Europe, would probably produce half a dozen rivers, flowing with deep and rapid streams, equal in bulk to the Rhine, the Rhone, and the Pô.

The countries on both sides the Andes, from the straits of Magellan to the latitude of the river Biobio, in 37° S., are described as being moistened by abundant rains, particularly the tract to the south of the Araucanos. The lands of the latter are represented as enjoying a fine climate, a very fertile soil, and as sufficiently watered for good pasture, and for agriculture without irrigation: but, from that river, the climate begins to undergo some change, and irrigation often becomes necessary. As we advance northward and nearer to Santiago de Chile, the alteration becomes more striking, although the geographical distance be small; pasture is scanty, owing to the want of moisture, and from about Talca to Atacama, which forms nearly the whole of Chile below the Andes, the lands cannot be described as pasturages, nor vegetation as strong. Yet, the soil is every where uncommonly good: it throws up a little grass after the winter's rains, which are of very short duration: as we proceed to the north of Santiago, they decrease into a few showers, and at last, along the desert of Atacama and lower Peru, they entirely cease. But the spots of land which are cultivated, or laid down and irrigated, produce very abundantly without manure. The thin grass, of natural growth in the spring, lasts a few weeks, is very good for cattle of all descriptions, and a small saving against the calls on agriculture, so that the herds must be sent as early as possible to the Andes. Some trees and shrubs will however grow, in spite of the

extraordinary driness of the atmosphere, and cover thinly the ground. The dews are by no means generally heavy, but on the contrary seldom so. In winter, going from Santiago to Guasco, usually sleeping in open air, a heavy dew would sometimes come on and moisten our upper covering much, but the night would often pass without any; and in spring, summer, and autumn, either on the mountains or below them, in several excursions, during which we frequently slept without shelter, we seldom felt any other than a very slight dew. Were it not for the algarob tree, the acacia, a few other half dried up shrubs, and the irrigated spots in cultivation, the greatest part of Chile during nine months of the twelve, would be very like the desert of Atacama.

On the eastern side of the Andes, the climate offers the same phenomenon, and I have no doubt, as far to the northward as on the western; although there are in both some few small spots, which, owing to their peculiar forms or situations, and to the supplies of some scanty streams from the mountains losing themselves over their surface, are naturally fit for pasture the whole year; and these are very valuable to the owners of the estates in which they happen to be situated. To the eastward, there being more scope than in Chile, the effect of this peculiarity of climate is felt at a distance of near five hundred geographical miles from the Andes, where the heavy and frequent rains which fall at Buenos-ayres, begin sensibly to decrease, and soon afterwards, to make way for almost uninterrupted sunshine: and although light showers will sometimes extend beyond their usual limits, or some remarkable winter may cause a little more rain to fall than usual, yet such is the principal feature of the climate on both sides that chain; as far as the sixtieth degree of longitude, to the east; probably far at sea to the west; and to Quito northward. In Chile and in the opposite eastern country, the sun shines nearly the whole year, with great brightness and power, being only now and then interrupted, by the short rains and cloudy days of winter with the northwest wind, and by some few passing clouds in the other seasons: but, in lower Peru, the sky is much more clouded, although rain do not fall.

If we now advance on the chain itself of the Andes, we shall find that, from the same latitude where the climate becomes drier, and of Conception, or perhaps far

more to the southward, the clouds hang thick, almost daily, on some parts of the higher ridges, or, to speak the language of Chile, of the cordillera, and that they are not often seen on the top of the lower chain, except in winter. Storms about those ridges are very frequent during the whole year; and, in summer, the lightning may be seen there from Santiago, two or three times a week in the evening or at night; but thunder is very seldom heard. The clouds do not discharge their contents in rain, but in snow. Guides in Chile, the herdsmen who lead the cattle to the mountains below the higher cordillera in summer and who tend on them, or, in short, any one that I heard, will not say, it rains on the mountains, but, it snows; although the storm may extend very far below the line of perpetual snow. In the months of January and February, our July and August, the next day after descending from spots probably about five thousand feet high, not half the height of the cordillera, nor a third part of a summit rising above it, storms and cold having replaced the sunshine we had enjoyed, and the great heat we had experienced, the men with us said, that it snowed where we had slept, and the thin covering of snow which had extended to a mountain much below the central ridge and very distant from it, continued to shew itself after a bright sunshine of two days; although under the 33d or 34th degree of latitude! In the middle of March, after daily storms in the Andes, the snow came down so low, that for a short time the prospect, even of the smallest mountains around, was that of the beginning of winter in the north of Europe, whilst the heat below them was very great: so considerable is the difference of temperature in that country between the low and the mountainous lands, and between a calm and a windy day, unless the wind be from northwest. This is probably what induced some early travellers to represent Chile as a land so cold as to oblige its inhabitants to shut themselves up in caves during the winter, and others, to describe it as a hot country.

I have dwelt the more on this peculiarity of the climate of the Andes, and of some countries on each side of them, as it explains the ultimate cause, why the rivers which descend east and west of that chain are so few and so small. To begin with the Maypo in Chile, and to end with Atacama, a space of one thousand geographical

miles, all the rivers and streams, which flow westerly from those huge masses, would not form so considerable a body of water, as that with which the Rhone enters the lake of Geneva, or of the Thames at Staines. In winter the lower snow melts, and in summer the higher, by which means those rivers receive their small supplies, in much the same quantity, throughout the year, unless the expected falls should be smaller than usual; a circumstance which sometimes happens, and lessens the annual supplies, as much to the detriment of irrigation in the northern vallies of Chile and of the small display of agriculture there, as the long droughts with us. On the eastern side of the Andes and near San Luis, what in some maps is marked as a large lake, is but a small piece of water; as is also one in Chile, to the southward of Santiago, which is so shallow, that it has been contemplated, by the owner of the estate in which it lies, to drain it; and, I little doubt, but such would be found the case with many other lakes traced in those maps. The river Mendoza, although collecting the streams of a very broad and long range of the Andes with several summits of considerable height constantly covered with snow, is only a large torrent. The river Desaguadero is marked as large, but is only just deserving to be called one: it shews the surface of a river above a small size, but has no depth of water: it however runs in a very wide channel, and, at some former period, must have been considerable and majestic. The river Tercero, by far the largest of all, at the distance of a hundred and fifty miles from the Parana, may be from four and a half to six feet deep in the middle of its stream, and about ninety wide; yet here, at five hundred and fifty miles from the Andes, it has received the waters of mountains branching out from them in the latitude of Cordova. From this river to Potosi, are seen nothing more than a few mountain torrents.

But that rivers of the first magnitude have once flowed, is evident. I have mentioned the former wide bed of the Desaguadero, and on the road from it to Mendoza, is the very broad but dry channel of a river, which must formerly have existed: it is full of stones much worn and rounded by attrition. In Chile, from Santiago to Copiapo, there are some vallies which are very remarkable, and form a singular feature in that country. These extend from the Andes to the sea, are from one to two miles wide, and

although now only watered by very small rivers, shew traces of having been once filled up by them, to a height of thirty or fifty feet: each bank is lined with a high extensive mass of rounded stones mixed with earth, entirely dissimilar from the ground on each side of the valley, and two or three different banks are seen contracting as they lower, and shelving down with a regularity, which seems to indicate that the water, after flowing a considerable time with an even stream, must have suddenly fallen much at different periods. These shelving banks look as if they had been raised or cut down by human labour, and the traveller wants but little help, to imagine the enormous masses of water, which must have most magnificently flowed in such channels a considerable time: the image, connecting itself with a period when Chile must have been very different from what it now is, becomes more striking and interesting; as it is much easier to fancy a great sudden catastrophe, a temporary convulsion by which mountains are raised or overturned, waters breaking in or out, advancing and again abruptly retreating, than such immense rivers with a regular and majestic course, not exceeding one hundred miles, where there is now but a stream, and where every feature, except the body of water, appears to remain precisely in the same state as when those vallies or rather broad channels, were left nearly empty. They were not common supplies that could fill them. Lakes overflowing the numerous bowls of Chile, or waters oozing out at every pore of the Andes, must have contributed to them; and when the present dry climate of that country, with its scanty streams, are considered, the sight of those old banks becomes the more extraordinary. It is in them, and often at a height of twenty or thirty feet from the present bed of the rivers, that search is made for gold, and that the washers or *lavadores* are looking for it. To do so in the lowest channel, and by the sides of the streams now flowing, will not reward their labour, unless it be in some mountainous spots known to contain gold, or in some breaks and hollows, where a heavy winter shower may have disturbed the soil or the fragments of rocks. The small rivers on the eastern side of the Andes, corresponding with the situation of Chile, have not, I

believe, been much visited, and a scientific traveller might find it interesting to ascertain, if those which flow to the northward of San Juan present the same features.

It may be doubted if this part of South America can strengthen the opinion, that the southern hemisphere is colder than the northern. The mean summer heat, at two o'clock P. M. and in the shade, probably is, at Buenos-ayres, in 35°, about 88° of Far.; at Mendoza, in 33°, about 90°; and that of Santiago in 33° 20′, 85°. Santiago is nearer than Mendoza to the central cordillera: but in the two last towns, the thermometer usually sinks in summer and in the night, from 20 to 26 degrees. When the navigation from Europe into the Pacific Ocean was through the straits of Magellan, between the parallels of 53° and 54°, the excessive cold felt there was often described, and much surprise at the same time expressed, at the strength of vegetation on the shores: but now that it takes place round cape Horn, and near the sixtieth degree of southern latitude, the cold felt there is not mentioned as being very intense. (SEE METEOROLOGICAL OBSERVATIONS AT THE END OF THIS VOLUME).

May it not be conjectured that it is not the wind alone, passing over the snows of the Andes, which causes a lower temperature near that chain, but that the substances of which it is composed, and some process still going on in them, are generating the cold so extensively felt along it, when not subdued by a sunshine which must have the more power as the atmosphere is thinner? and may not the driness of the climate be attributed to the same cause?—Mr. de Humboldt mentions an extraordinary fall of temperature in the table lands of Quito, ever since the earthquake of 1797, which caused the destruction of forty thousand people, and the thermometer to stand most generally from 41° to 54°, instead of 66° and upwards, which was the temperature of those lands before that calamity happened; whilst no indication is shewn of a tendency to resume its former elevation.

The immense plains of South America have lately been described as presenting this characteristic feature, that they are to common sight without inequalities, and perfectly level in every part; but this description cannot apply to what I have

seen of the most extensive of all, the pampas, which, from Buenos-ayres to Mendoza, are a continuation of undulations very strongly delineated. Whether or not these inequalities enter Paraguay with the plains, where these become, during a short distance, contracted by the mountains of Brazil on one side, and the groups of Cordova and San Luis on the other, I cannot state. The left bank of the lower Oronoko, we learn from Humboldt, has few or no trees, and consists of swamps and pasturages whilst under the effect of the winter's rains; but in summer, they become entirely dry and burnt up, losing their vegetation. The immense extent of plains, between the mountainous and transverse groups of Parima and Chiquitos, being within the range of equatorial rains, is, on the contrary, almost wholly covered with thick forests, which also crown those mountains; and there are no other roads in them than the course of rivers. But the southern plains or pampas cannot be described, in regard to vegetation, as similar to those of the Oronoko, from which they appear to differ no less essentially in their vegetation than in their inequalities. Within two hundred miles of the Andes, from 36° or 37° South, these plains bear scarcely any thing more than small trees and shrubs, thinly scattered over the ground. Without that distance, and for the space of about three hundred miles more to the eastward, the line of pampas is, in some places, thinly covered with woods, chiefly consisting of a small acacia, called *espino*, and the open ground with a tough wiry grass, of a yellowish green, which grows in large bunches wide apart: and at last, more to the east and out of the line of about five hundred geographical miles from the Andes, is another tract of plains, which is watered by abundant rains all the year, and the vegetation of which is very luxuriant in trefoil and variegated thistles. Within this tract are, I believe, the principal herds of cattle; and it is very probable, that it widens as it advances towards the lands of the Moxos; because, if the Andes really be what occasions these different stages of vegetation, they stretch out to the northwest, and because the equatorial rains may extend their influence, so as to counteract that of the great chain. I am well convinced that, on the road from Buenos-ayres to Mendoza, there is not generally any essential difference in the soil, and that almost any

spot under the dry climate will, with irrigation, display the same fertility and produce most abundantly, without manure. Mr. de Humboldt states, that he has not met with gravel in South America; and having been attentive to a feature which is so conspicuous and so extensive in many soils and countries, I have not been able to discover a single trace of it, on either side of the Andes. The only substance approaching it, with which I met, was a coarse conglomeration of masses, at the top of the central ridge or cordillera, and at a height probably not less than fourteen or fifteen thousand feet above the level of the sea: it consisted of granitic and other stones rounded by water, sand, and pieces of rocks apparently calcareous. Mr. Helm expresses his astonishment, at having seen a thick stratum of granitic stones also rounded by attrition, nine miles from Potosi, on one of the highest mountains there covered with snow, as the low ridge of granite had ended at Tucuman, and the chain rising from thence to Potosi, had consisted of simple argillaceous schistus.

It ought to be observed, that the account given here of the pampas is derived from an inspection in two journies across those plains, but that I have not been out of the road from Buenos-ayres to Mendoza; and that north of it, within five hundred miles of the Andes, vegetation may assume a different character, as the driness of the atmosphere increases, or as the situation of the plains alters. Although the want of moisture, within that distance, appears to be much less felt beyond the 36th or 37th degrees of southern latitude, and near the equator, yet it may become interesting hereafter to ascertain, if the cause of this atmospheric driness remain, and be only counteracted by another which lessens it, or if it be entirely removed. For this investigation, a scientific man would probably find, from the latitude above stated, the range of the Andes, both east and west, of safe and easy access; but I doubt much, if he could yet penetrate further to the southward without exposing himself to great risks.

The range of mountains, along the coast of Caraccas, has been described, as cut by deep ravines, very uniformly directed from southeast to northwest. In Chile, the bays, whether large or small, are known very generally to open to the northwest, and

the vallies or broad channels, which I have already mentioned as communicating between the Andes and the sea, are, I have reason to believe, though unable to affirm it, likewise directed from S.E. to N.W. Indeed it was to the comparative obliquity of this direction in ridges of rocks and vallies, that I attributed the constant deception of that of the Andes when on them, or of the road whilst travelling along the sea shore, where it either appeared as if leading to the sea itself, or, on the contrary, as if striking quite inland.

Whilst the principal part of the high chain of the Andes, and of the most elevated mountains in South America, appears to consist of argillaceous shist, the lower chains and groups of that continent are described as chiefly granitic. Having had an opportunity of sailing in view of a considerable extent of the southern coast of Brazil, I observed the same features as at Rio de Janeiro; rounded hills of granite, much blackened outside; very numerous, either on the coast or forming islands near it; appearing as so many large loaves or domes, and as if having swelled and risen into their present shapes. On approaching and ascending the chain of the Organ Mountains, to the west of Rio de Janeiro, I no longer found these conical hills and the granite; but after having descended the western side, they again appeared. Conical hills of the same appearance are likewise seen about seven hundred miles further to the southward, near the northern bank of the river Plata.

The southern extremity of the mountains of Cordova I found to be of a coarse granite, the same which Helm observed further to the north, and which he only lost on approaching the Andes, where the clay slate becomes the predominant rock. The transverse group of Chiquitos has not, I believe, been investigated; but that of Parima is described as being also principally granitic.

In travelling from Coquimbo to Guasco in Chile, we shall have to notice a remarkable rock near the sea, shewing I think evidently, the different stages of its formation; and if I durst venture a conjecture from it, on a subject with which I am so little acquainted, it would be, that granite may be found formed of a due proportion of fragments of sea shells with sand, having undergone an inward process modified by local circumstances.

CHAPTER III.

GENERAL FEATURES CONTINUED.

ONE of the necessary preparations for visiting foreign countries, particularly those which are distant, is to procure as much information as possible concerning them. All the books that can afford it, are ransacked and read; and the traveller, when he arrives, often finds himself enabled to impart some of his knowledge to the inhabitants, who, however well informed themselves, often learn from him of their own country, what they did not know. But this can yet but seldom happen with Chile and its Andes. I as well as several other persons whom I saw there, felt much surprise and disappointment at the inaccuracy of many accounts given of that part of South America; and I have no doubt but they would also be felt, in several of the eastern tracts of that portion of the Andes. Some writers, partial or careless, have led the way; others have followed it: amongst these, many would naturally take for granted, that where high mountains are found, there, must also be deep vallies; and that, of a great number of vallies, some must be like Arcadia with its shepherds, others a Tempe; some must represent Swisserland with its pastoral costumes, others the views of Italy and of the Pyrennees: that where rise many hills, the sceneries of Wales, of Cumberland, or of the Scots highlands, must often shew themselves; and that a vale of Clywd or of Llangollen, a Windermere or a Loch Lomond, will gratify the traveller at many a turn. When they see rivers traced on the maps, they conclude that nature will smile on their banks, because it does on those of the Thames or the Wye, of the Rhine or the Loire. Then, from analogy, they are led to call countries, so enclosed and so watered, fine and fruitful. But he who travels in them, has a very different account

to give: a rock or a half withered shrub, will perhaps be his only shelter from a burning sun: his beasts will starve for want of pasture; and the plant on the water edge, will die for the lack of moisture, or only live with the thirst of Tantalus. The face of nature here becomes soon known. The deceitful hope that it would smile at every step, vanishes. The traveller, fond of its beauties, finds none: yet it seldom frowns. A want of animated expression prevails every where: yet all is not dead, but seems asleep; and the expected delight is changed into the wish to lay down and rest, or to accelerate the step and begone.

When the productions of a country are stated, the acceptation of that word, as a preliminary step, ought perhaps first to be defined; and I hope I shall not err in giving to it the same signification, as when it is said that the mines of Great Britain produce coals, iron, copper, tin, and lead, by which is understood, that these are got in sufficient abundance to provide for the principal consumption of its inhabitants, or even to export to foreign countries. If we were to admit the literal meaning of the word production, it might then be stated that England yields gold, because a few pounds of it can be obtained from its bosom; or grapes and pine-apples, because some of these fruits will ripen against favoured walls or in hothouses.

We have already seen, in South America, a great variety of climates; situations fit for settlements and agriculture, so low and so high in the same latitudes, that under the equator itself, whilst some inhabitants experience a scorching heat, the greater number reside on table lands of considerable elevation, and of a cold temperature. We have observed a vast eastern tract, with a transverse equatorial zone, watered by abundant rains; and a western line, of very great length and breadth, with hardly any other moisture than what is produced by the snow falling on the Andes: part of this line almost ever cloudy, and part with a nearly uninterrupted sunshine. The latter tract, on each side that chain of mountains, and within four or five hundred miles of it, is probably and comparatively to situations, the most fertile when irrigated, but the least productive in its natural state. In Brazil, the

soil requires manure, but the climate is so favourable to vegetation, that, in most spots, two abundant crops of maize and other grains may be raised in the year. North of Chile, in some parts of Peru and Quito, they also use manure, and the dung of sea birds forms a considerable branch of employment and trade. It may be conjectured that there, the want of sunshine must cause less fertility in the soil. But in Chile, and on its parallel eastern side, manure is not used; yet the land produces every where abundantly, with irrigation and very little labour. Therefore, when the extent, the situation, the soils, and the climates, of this great continent are considered, it becomes obvious, that the shortest way of giving an account of what it can produce, would be to state what it cannot; but this is not yet ascertained; nor is there cause for supposing that any plant could be found, which South America would refuse to grow to maturity. Let us then imagine, all that could tend to encourage and multiply the wants and fashions of dress or dwellings, and the materials would here be found for that purpose: or if we wished, first to indulge our palate with any production that we ever tasted or heard of, and next to remove the effect of that indulgence, the sweets for the gratification, and the bitterns for the cure, would be obtained here, by a cooperation of the gifts of nature with the industry of man.

Owing to the abundance of rains and moisture, along the eastern parts of South America, and in the midland countries under the equatorial zone, all branches of agriculture may there be pursued without artificial irrigation; but, from the province of Caraccas to the westward, and then south, on each side the chain of the Andes, as far as the lands of the Araucanos, with the exception of some particular spots, no progress can be made in the culture and growth of products, unless they be irrigated.

Within the tropics, and where there is sufficient heat and moisture, the sugar cane, the coffee, cacao, and cotton trees or shrubs, are the most profitable objects of agriculture and trade. These are extensively cultivated in Brazil, in the Guyanas and Caraccas; in New Grenada, and a little in some other parts of the west. Maize is so generally grown in South America, that it may be called the corn of that country.

At the time of the conquest, this production was already cultivated in most parts of it, both for food and drink. *Jatropha manihot* or *mandioc*, the white and esculent root of which is ground into the substance called *cassava*, was also a plant of extensive use and cultivation: it is still so, where the climate is sufficiently hot and moist for its growth: this root which, in its natural state, is highly poisonous, loses its deleterious effects by being ground and washed. The meal made of it, commonly called *harina*, is either eaten when new, or stored up after being dried over large heated copper pans, without which process it will not keep: it is also made into cassava bread; and, like maize, it serves for a fermented drink. Potatoes are also a production of South America, and indeed were first introduced into Europe from the western continent; but in Chile, where they are extensively cultivated, they fail much in flavour, and cannot be compared to our's: in some other parts, particularly in the eastern, they degenerate so fast, that the plants must be renewed by foreign bulbs every one or two years; a circumstance which may be owing to a want of skill in the culture. Onions are a production which grow to great perfection in South America, and are an article of considerable consumption, particularly amongst the labouring classes.

Kidney beans are much cultivated in Brazil and Chile: they are, in the latter country, of more importance than maize, and constitute one of the principal articles of food for the poorer classes: some sorts are of an extraordinarily fine taste. Wheat and barley have long made a branch of the agriculture of Chile, and much of the former grain is annually exported to Peru, or is occasionally sent to Brazil. It is also cultivated in the neighbourhood of Buenos-ayres, in sufficient abundance for exporting it, particularly to Brazil, where it is yet but very partially attended to, although its growth there would be most extensively favoured, both by climate and situations. This corn is also reared in some parts of New Grenada, from whence considerable quantities of flour are exported: it is likewise produced along the Andes on table lands and other spots, until, to the southward of the equator, the difficulty and expence of irrigation become so considerable, as to render the

importation of it preferable. Rice is one of the productions of Brazil, and is I believe but little cultivated elsewhere: it is often brought to the western coast from the East Indies.

The cabbage is also met in abundance; and the gourds, which are so generally an appendage to every dish of boiled meat, in the tracts of Buenos-ayres and Chile, are of a flavour much superior to those which I ever had an opportunity of tasting elsewhere. *Capsicum* or red pepper, called *aghi*, is very much and very generally grown and used in many parts of South America: it forms a small branch of trade between many districts of it; and seldom is a dish produced, without being highly seasoned with it: it is of an agreeable flavour, and although much more pungent than the pepper of Hindostan, yet it is thought more wholesome. Tobacco is cultivated in many places in great abundance; much of it is nevertheless imported from the island of Cuba: it is seldom chewed, or taken as snuff, but is of a most extensive and considerable consumption in the shape of cigars among both sexes of nearly all ranks, although of late the upper, and more particularly the women, are gradually leaving off the custom of smoking.

The *hierba coca* or *coa*, the infusion of which is so much drunk in a great extent of South America that it is often called its tea, is gathered in Paraguay. Some spurious or inferior kinds of it are produced in Brazil and elsewhere; but the real or best hierba is said to be only gathered near Villarica, which is contiguous to the mountains of Maracayu, the eastern part of the province, in low woods of difficult and dangerous access. The tree which yields the leaf, is a species of ilex, of a size and appearance somewhat similar to an orange or a small pear tree. Considerable quantities of these leaves, which are first dried and coarsely pulverized, are, or rather were, consumed in Buenos-ayres, and in all the neighbouring provinces; in Chile, Peru, and other parts: but the difficulties thrown in the way of their being got and exported, even in Paraguay itself, are so great, that hierba is now selling at about seven shillings sterling a pound in Chile; and as a palatable infusion cannot be produced, without using far more of it than is required for making good China tea,

the poorer classes are nearly deprived of an enjoyment, which, particularly among women, extended also to social pleasure. Drinking a *mate* or a *matecita,* which derives its name from the vessel out of which the infusion is sucked being so called when full, forms a kind of tea party and talk, when the afternoon siesta is over; and, until lately, was as generally offered to a visiter, as is a cup of chocolate in some parts of Europe. This beverage is thought a specific against what may tend to disturb the constitution, and a mean of cure when it is disordered. After the use of tea, the flavour of this Paraguay hierba is at first a little insipid, but soon improves with the habit of taking it, and at last becomes pleasant. It does not in the least tend to shake the nerves. A small quantity of China tea mixed with it appeared to us an improvement; and during excursions in Chile, when the keen air of that country at night renders very early rising a chilling exertion, a warm bowl of this infusion was particularly agreeable: it became more so if some cow's or goat's milk could be added to it, a luxury seldom to be procured. A considerable importation of hierba coca once took place from the river Plata into England, at which the traders in tea took alarm, and such as had begun to drink the former, were frightened out of its use, by reports that it was unwholesome. China tea is now consumed by the labouring classes in England, in much more abundance than formerly: in many cottages it is drunk three times a day, and has superseded the use of beer or pure water at the midday's meal. This is one of the changes in diet, the effect of which can seldom be ascertained until whole generations have passed away, and the evil consequences of which, if any should follow, manifest themselves too late for a complete cure. The mixture of Paraguay hierba with tea might correct the effect of the latter on the nervous system, and agree no less with the taste than with the constitution of the consumers, a considerable number of whom are under the necessity of drinking tea with very little sugar, and often without any. It would be the means of opening a trade with a state in the interior of South America, which, from its situation and climate, might become the garden of that continent.

The vine, orange, lemon, almond, olive, pomegranate, peach, apple, pear, and fig trees, are more or less cultivated in most of the settlements of European origin in South America. It is, I believe, only in Mendoza, in Chile, and in the southern parts of lower Peru, where wine and brandy are made from grapes, on a scale sufficiently extensive for trade. Apples and peaches are abundantly found east and west of the Andes, about the latitude of Buenos-ayres, and appear only to require some attention and skill, to become equal to our own. The cherry tree is also found there, but does not bear fine fruit. The figs are small and of a good flavour: the fig trees, which grow to a large and handsome timber size, might become no less ornamental to the landscape than useful to the inhabitants. Pine-apples, melons, and water-melons, are generally met: the first, under the equatorial zone, are said to be far superior in taste, and the last are so in Chile, where, next to tobacco, they afford to the lower classes one of their greatest enjoyments during half the year. At any time of the day or at eve, a labouring Chileno is always ready for smoking a cigar and eating a water-melon, which, as soon as it ripens and appears in the garden or market, is hailed with a general welcome, shares with the infusion of hierba the renown of preventing or removing all bodily complaints, and gives rise to many nightly thefts amongst poor cottagers. The strawberries of that country are famed, but deserve to be so for their size only and not for their flavour: it is said that in Quito, they are as large as a small hen's egg.

Hemp and flax grow well in proper situations, and at one time were gaining ground in Chile; but the demand having been only temporary, during the late wars in Europe, these productions are again neglected. Madi is cultivated in Chile, and seeds of it were sent from thence to Buenos-ayres; but hitherto its culture has not made any extensive progress. It is spoken of as a very useful plant, its stem being strongly alkaline, fit for bleaching or for making soap, and the seeds producing, by pressure or boiling, an oil which is good for household purposes, and said to equal that of olives. They distinguish the *Madia sativa*, a *genus n ·um*, which is cultivated, from the *Madia villica* or *mellosa*, which grows wild.

The grass which is cultivated, near Buenos-ayres; in the neighbouring provinces, particularly in those where irrigation is practised, on the eastern side of the Andes; and in Chile, is the lucern, which grows most kindly, yields very abundantly, wants seldom, if at all, to be renewed, and makes a very substantial fattening pasture and fodder. In those countries it is called *alfalfa.* It has been mentioned as a natural grass in Chile; but I could not observe, in any part of that land or of the pampas, a single trace of it, in grounds which had not been previously ploughed and cultivated. Red and white clovers are plants which I have not any where seen.

In the environs of Rio de Janeiro, the only grass which I could find cultivated is of African origin, of a very quick and tall growth; but it requires cleaning and top manuring, operations which render it expensive. The introduction of some kinder grasses into that part of Brazil, which appears deficient of good pasture, is the more requisite now, as the lands are, although very slowly yet gradually, clearing of their woods, in order to be cultivated, and as the cattle in them, notwithstanding the great fertility of the soil and a most favourable climate, seem neither numerous nor very thriving. Some experiments lately made with lucern offer a doubtful result, and I do not think that the cultivation of any kind of clover has yet been tried there, nor have I seen any grass resembling it, in the pasture grounds near Rio de Janeiro. A plant, growing abundantly in the woods to a considerable height, is either eaten by the cattle on the spot, or cut for them, owing to the want of a better, as it is coarse, and poor of nourishment. The name of the African grass in Brazil is *capim de Angola:* tough and reedy, its being a fit and wholesome food for beasts may be doubted.

I have already mentioned, that the eastern part of the pampas through which I travelled, was covered with trefoil and variegated thistles, both of which were soon replaced by a stiff grass, scattered in large bunches over the plains. In Chile, on the western side of the Andes and in few places, is found a thin plant of clover, which bears a yellow flower, but is considerably smaller, both in leaf and stem, than our white species. The brows of the lower Andes, and the declivities of the

breaks and vallies, are very thinly covered with plants, which rapidly grow in the spring, soon dry up, and preserve their strawcoloured stems until the following winter, as there is not moisture to hasten their decay. These plants consist chiefly of wild oats, intermixed with patches of wild barley. Our beasts ate them very readily in their withered state, particularly the latter. During a great part of the year, they throw over the lower sides of the mountains a bright yellow tint, which at a distance looks as if it belonged to the soil. Above these, and below the central cordillera, the alpine pasture is but thin, but yet sufficient to afford to considerable herds of cattle a strong and fattening food, and, I think I may venture to affirm, to the botanist, much employment and pleasure. The plants are here singularly glutinous to the touch. The guides and herdsmen, *vaccianos*, of the Andes, had told me of one called by them *ceponcilla*, which was particularly kind to the cattle and the guanacos, and eagerly sought by them. During an excursion along the central chain, and probably at a height of six or seven thousand feet, I found a small patch of it, which had taken possession of a piece of soil very different from the rest, and much more moist; it had been grazed quite close. I found some seeds of it, between pieces of rocks to which the animals had not been able to get: the root was of the size of the little finger, and it appears to belong to the order of *polygona:* from recollection I should suppose it to be the *polygonum setosum.* Below the mountains, and on the sides of irrigating channels, before they enter the cultivated fields, is often seen strong couch grass, which they think good pasture. I observed rushes in one single spot only, mixed with the bunchy grass of the pampas. The fallow lands are covered with very tall and stout thistles, wild turnips, and other weeds. Rice is found wild in the low and inundated lands of the interior of South America, near and within the tropics.

Wild coffee and cacao trees are chiefly seen in the basins of the Oronoko and Amazon. The Indians eat the pulp of the cacao nuts and throw away the kernels, which are picked up by the traders and carried down those rivers for sale: when these nuts come from uncultivated trees, they generally are bitter, and sell at very

inferior prices, owing to the quantity of sugar required for making chocolate with them. The wild cotton tree is extensively spread in South America: trunks of this order have been found, which measured above fifteen feet in diameter. The fig tree also grows wild in the forests; but the few which are seen in Chile are reared from shoots. A tree of this species is described by Mr. de Humboldt, the diameter of which was twenty two feet and a half near the roots. This, no doubt, is the extreme width, including all those ligneous excrescences, rising like ridges or ribs as high as twenty feet with the main stem, and as abutments to it: it constitutes, nevertheless, a most enormous size. When the roots were cut with a hatchet, at a distance of twenty feet from the tree, its milky juice gushed out, but deprived of the vital influence of the organs of the tree, it immediately altered and coagulated. In Chile, and on the eastern side of the Andes, this is almost the only tree which ornaments and shades the ground near cottages and small farms: it requires but a moderate share of moisture, and produces good fruit, the consumption of which is considerable amongst the labouring classes; yet, notwithstanding its great use, it is not often found there. The banana or plantain tree, grows freely under a tropical heat and a moist climate, to the height of twelve or fifteen feet, bearing a great abundance of a mealy fruit, of a yellowish white colour, from six to nine inches long and one and a half thick, of a sweetish somewhat insipid flavour, which is extensively used by the Indians, and by the African slaves, but not much by the white inhabitants. With its long majestic leaves, this plant is very ornamental to the grounds near Rio de Janeiro.

The soil and climate of the eastern part of South America appear to be less favourable to the production of drugs and spices, than they are towards the western. The Peruvian bark, whose qualities were first discovered to the Jesuit Missionaries, and by them made known to Europe, forms a considerable branch of trade. It is brought to Europe, after a difficult land carriage, and a sea voyage round Cape Horn, of five months or more: some of it is afterwards sent back to many parts of its native continent, which, by inland navigation, might be supplied with it in less than a

month. Sarsaparilla grows very abundantly in the interior, and principally in the forests between the Amazon and the Oronoko: the best is said to be near the Rio Negro, which falls into the Amazon up which Brazilian traders go and fetch it. The wild cinnamon tree is found scattered in most of the western tracts, and reaches, it is stated, as far as the land of Magellan, notwithstanding its high latitude. I once only met with this fine shrub in Chile, in latitude 33° S.: it was shooting straightly and elegantly up, in a hollow spot well sheltered and moistened by surrounding mountains, helping some other trees near it to gratify the traveller with the appearance of an European grove, a pleasure seldom enjoyed in the bowls of that country, where the ground which is not occupied by the acacia and the algarob, is so encroached upon by aloes and prickly pears, that the inhabitants neglect no opportunity of burning these off, where they wish some goats and other animals to browse. The bark of the wild cinnamon is used there; its spice appears to partake of both the cinnamon of Ceylon and the cassia lignea of China. Vanilla and nutmegs are found nearer to the equator. The black pepper plant was formerly brought from Goa to Brazil, and cultivated with success; but to get this spice ready grown from the East Indies is cheaper still; and as to those extensive countries, where the inhabitants are in the habit of using so profusely the red pepper or capsicum, the fine and very pungent flavour of it, will not probably ever be exchanged for that of the black or white, which only appear there on some tables, chiefly for the sake of following European customs.

The poison *ticunas* of the Amazon, *upas ticute* of Java, and *curare* of Guyana, is the most deleterious substance known; and being used by many tribes of Indians in the interior of South America, principally under the equatorial zone, forms at first a branch of manufacture and trade amongst them, and at last the means of mutual destruction. It has been described as a part of the alburnum of the tree called *mavacure*, which is bruised with stones, infused with cold water, filtrated, and afterwards concentrated by evaporation. A glutinous substance is mixed with it, in order to make it stick to the arrows, and its powerful effect is

only felt when the poison comes in contact with the blood. The Indians kill all animals, whether domesticated or not, with those poisoned arrows; and the reason which they give for it is, that their flavour is thereby much improved.

Dying woods are abundantly produced in South America. The most valuable is that which is known under the general name of Brazil wood: it produces very beautiful red and orange colours, and is so hard that it sinks in water. Log or Campeachy wood, and fustick wood or the dyer's mulberry tree, are generally got from the Bay of Honduras; both used as preparatory bodies in dying; the first yielding a dark red, and the last, a greenish yellow colour, which are afterwards altered or modified by alkaline and other mixtures, to blue, red, green, black, and other tints. The fine vegetable dies which are obtained below the Andes, in Chile and on the eastern side, and the fastness of the colours, would lead to think, that they must be there of a superior kind, and may give rise to some interesting investigations hereafter: the driness of the climate, the continuance of sunshine, or the metallic nature of the soil, may contribute to the excellence of those dies in their growth, rather than the skill of the inhabitants in their use. The indigo plant was formerly very extensively cultivated, and its dying substance manufactured, in Brazil, Caraccas, New Grenada and Guatimala; but the rapid and extraordinary increase of the supplies of indigo sent to Europe from the East Indies, during the last thirty years, has gradually caused this branch of industry to be nearly abandoned in South America, and to make room for coffee, cacao, or sugar. The plant is found wild in many parts of it, and used by the inhabitants for dying their stuffs; even by the Araucanos, according to Molina.

Cochineal, which is used for the scarlet crimson die, and from which the finest carmine is prepared, is principally reared and gathered in Mexico: it is also a branch of trade in New Grenada, and was once successfully attended to in Brazil, where the want of precaution for preventing its adulteration became fatal to its sale, and it was abandoned. This insect is found in many parts of South America; it exists in Paraguay and Tucuman; and we met with it in the state of Cordova, where we

saw it and its plant near a posthouse, whose owners, after having kneaded the cochineal into small cakes, used it for dying worsted. The large importations of this article into Europe from Mexico, and the attempts to supply it from the East Indies, have been very considerably checked of late years, by the improvement effected in the use of lac or lacca, commonly called gum lac, although it does not appear to be a gum or resin, but the work and cell of the female of an insect, which feeds on various trees in the East Indies. If lac be gathered before its dying properties are consumed by the new born, it yields a colouring matter, which is nearly as fine as that of cochineal, and is said to be more durable; forming a considerable inland and foreign trade, and imported at a price, which has sunk that of the best cochineal, from about thirty five to near twenty shillings the pound: this latter die, being mixed with that of lac, adds to its brilliancy. Sticklac and shellac are the lac so called after having undergone different processes. Sealing wax, beads, and other ornaments, are made with it.

As the eastern countries of the South American continent are not, like the western, subject to earthquakes, they may and do bear higher buildings and dwellings without danger. In Brazil, they often rise two stories above the ground floor, and in Buenos-ayres, one; but, in the interior and in the west, the whole distribution of apartments is generally made on a ground floor. The timber used for building whatever deserves the name of a house, is very hard and durable, and in many extensive tracts, cannot be procured without a long and expensive mule carriage. In Chile, a wood of a red colour is employed for inside work and other purposes, when it can be got; it comes from the island of Chiloe, and from a tree which has been described as a cedar, of a size so immense, as sometimes to yield eight hundred planks: but if the planks meant here be what I have seen at Valparayso, they are only small boards, about six inches wide, an inch thick, and ten or twelve feet long. This wood is not sawed, it is only split into boards; but so easily and evenly will it divide, that they appear as if slightly planed; it is extremely light. I could not perceive in its texture much similarity to that of the cedar; it

appeared very like the wood of the red larch, which is found in some of the highest Swiss vallies or declivities, and preferred by the inhabitants to the white; but the wood of Chiloe is still lighter, and of a deep red colour. It might prove a valuable acquisition to Europe, particularly to England, where some likeness of climate might favour its growth, which, I should suppose from its appearance, must be rapid: its fibres seem as fine and closely united as those of the larch: it has not the aromatic scent of the red cedar, but, like it, it is said to remain free from insects, whilst the hardest woods are attacked by them: water casks and buckets are also made of it, owing to its fitness for such a purpose. If any of the British ships of war, stationed on the western coast, should ever visit Valdivia, an easy opportunity might offer of procuring some plants or seeds of this tree.

A plant, which at first begins to appear in the shape of a shrub, and in patches near Buenos-ayres, on the banks of some rivers, grows towards the west into a small tree, and principally forms the thin woods in the dry regions of the pampas, from the state of Cordova to the foot of the Andes; appears again below them in Chile, and extends over the greatest part of all the hills, bowls, or vallies, of that country, as also over vast tracts in Peru, is the *espino* or *espinillo*, of the Spaniards, the *caven*, in the Araucano or old Chileno language, and the *mimosa caven*, of Molina, which, the Abbé states, resembles the acacia of Egypt. I brought some seeds of it, and it is the *mimosa farnesiana*. This tree has been, and still is, of the most essential service to the inhabitants, and particularly to the miners, having principally furnished the fuel hitherto used for household purposes, and for those of the mines. Notwithstanding its being hacked and torn in every direction, it will grow again, and in six or eight years be fit for another cut; but of late, they have greatly injured and in many places destroyed it, by taking off too many crops, and by leaving the young plants too much exposed to the sun, which is now the cause of very considerable inconvenience and expence to the copper mines: it is very hard, gives much heat, and makes ashes sufficiently alkaline for the manufacture of soap. It is brought to market, both in its natural state, and in small pieces slightly charred, which are used

in large warming pans during the winter, without any inconvenience. The extensive utility and importance of such a readily growing wood as this, in mining countries, where much fuel is required, where there is hardly any other moisture than that produced by artificial irrigation, and where land carriage is difficult and laborious, may easily be conceived; and Chile will, ere long, have to deplore the want of care and regulations for the preservation of it, notwithstanding the coal beds of Conception. A tree belonging to this class, for which the general Indian name in New Grenada is *zamang*, was seen there by Mr. de Humboldt, which, with its branches, formed a hemispheric head of five hundred and seventy six feet in circumference, bending towards the ground like an umbrella; the trunk being only sixty feet high, and nine thick. But the acacia, below the southern Andes, is a very small unsightly tree, either with a stinted trunk, or issuing from the ground with many tortuous branches, half of them quite dead, the remainder looking almost sapless and but just alive.

On advancing towards the chain of the Andes, the espino or acacia is found joined by the carob or *algarobo, ceratonia siliqua.* This tree, both east and west of those mountains, appears to range only along a particular tract below them, and, like the former, to prefer the very driest lands: on each side they keep company, until the algarob leaves the ground to its associate. Its white fruit is contained in large yellow pods, and has been by some writers called the bread of St. John in the wilderness; its thorns are often, in Chile, above two inches long, so hard and so round, that they may be used as nails in soft woods. Another species, whose pods are of a reddish black, is found in the states of Cordova and San Luis. The algarob grows also in New Grenada, and probably all the way along the Andes. The early Spanish settlers, in going from Paraguay to Peru, met with some tribes of Indians who used its fruit for food: it is sweet; birds and cattle are very fond of it; and the whole algarob is so often preyed upon by locusts in some countries, that it is called the locust's tree.

Near to Mendoza, and in Chile, a small tree, with a straight stem of a bright yellowish green, might be the *morus xanthoxylon* or bastard fustick, but this is only a conjecture; it bears a fruit of the size and appearance of a nutmeg.

Another small tree which mixes with those already mentioned, particularly in the lower Andes of Chile, is the *chañar* or *lucuma spinosa*: it belongs to the *sapota* family, but is not so useful a member of it, as the *palo de vaca* cow-wood, or *arbol de leche* milk-tree, which Mr. de Humboldt found in New Grenada, and of which the following interesting description is given by that traveller.—"This fine "tree rises like the broad leaved star-apple. Its oblong and pointed leaves, tough "and alternate, are marked by lateral ribs, prominent at the lower surface and "parallel; some of them are ten inches long. We did not see the flower: the fruit "is somewhat fleshy, and contains one, or sometimes two nuts. When incisions are "made in the trunk of the tree, it yields abundance of a glutinous milk, destitute "of all acrimony, and of an agreeable and balmy smell. We drank considerable "quantities of it in the evening, before we went to bed, and very early in the "morning, without feeling the least injurious effect. The viscosity of this milk "alone renders it a little disagreeable. The negroes and the free people who work "in the plantations drink it, dipping into it their bread of maize or cassava, and are "said to grow sensibly fatter during the season when the tree furnishes most milk. "This juice, exposed to the air, presents at its surface, perhaps in consequence of "the absorption of the atmospheric oxygen, membranes of a strongly animalized "substance, yellowish, stringy, and resembling that of cheese. These membranes, "separated from the rest of the more aqueous liquid, are elastic, almost like caout-"chouc; but they undergo in time the same phenomena of putrefaction as *gelatine*. "The people call the coagulum, which separates by the contact of the air, cheese." This tree appears to be peculiar to the chain of the coast, particularly from Barbula to the Lake of Maracaybo. Mr. Bredemeyer found it also at Caucagua, three days journey east of Caraccas. The inhabitants profess to recognize, from the appearance of the trees, that which yields most juice, as an experienced herdsman distinguishes, from external signs, a good milch cow. There is in Jamaica a wood also called milk-wood.

A class of trees, which might be supposed to have served the office of nurses to

the human creation in its infant state, is that of the *palms*. This numerous and bountiful family, so extensively spread in the world, is stated to count about two hundred different branches, and to have nearly half of them settled in South America, where they distribute their gifts with a majestic grace. The *mauritia palm* is described as the American sago tree, affording food in considerable abundance; but the real sago, which signifies meal in the dialect of Amboyna, comes from the East Indies; it is taken from the trunk, and a tree, fifteen years old, will yield six hundred pounds of it. The *mauritia* or *murichi* palm is found in low spots, in the basins of the Oronoko, and in many other parts of America. The *pirijao* palm is also seen growing in that basin: its fruit, of the size of a peach or apple, hangs in clusters, each containing from fifty to eighty: it is slightly saccharine and very nutritious. Mr. de Humboldt mentions this species of palm as very useful, the Indians depending on its fruit for support during several months in the year. The coco or cocos palm is very extensively distributed, and its large fruit well known, considerable quantities being brought to Europe: it is of the shape of an egg, nearly as large as a small human head; has a white kernel above half an inch in thickness, of the flavour of a hazel nut, and holds in the middle more than half a pint of a sweet refreshing liquor. The fibres of the nut's shell may be spun, and made into very durable cordage; and this tree, like many other palms, furnishes wood for building, trunks fit for light canoes, large leaves for thatching, and, in the East Indies, for writing upon instead of paper. Other palms bear various edible fruits, and some yield oils, substitutes for honey or other substances, from their trunks. The palm of the Andes is described as a species, which is found as high as the line of perpetual snow. I did not meet with it in those parts of the chain which I have visited in Chile, nor on the road from Buenos-ayres to Mendoza, with the exception of two or three trees of this kind, which are seen rising above the houses of the latter town and that of San Luis, in irrigated garden grounds. The numerous groves of palm and cinnamon trees, mentioned by Molina amongst the beauties of Chile, must have

suffered much destruction since his time, or have but partially existed, as they very seldom offer themselves to the traveller, who must seek for a few of them in retired and particularly favourable spots, amongst the lower groups of mountains. The substitute used for honey, in Chile, is from the palm: it has a good flavour, but is thin. It is very probable, that the race of palms was formerly more numerous in that country, and that being injudiciously or wantonly used, it has gradually been decreasing, and will soon be totally extinct, as the tree usually dies after the liquid substance has been drawn off from its trunk. The coco nuts, which it there bears in considerable quantities, are very small. The palm tree rises from twenty to near a hundred feet in South America, according to situations and species.

Several kinds of palms might be called bread trees, owing to the many farinaceous fruits which they yield; but what is generally understood by that name, is the *bread fruit tree* of *Otaheite*, an *artocarpus* which has superseded other trees of the same numerous class, so extensively spread over the East Indian continent and islands, and in the Pacific Ocean. Captain Cook, when at Otaheite, discovered the superior quality of its fruit there, which does not bear seeds; and the British Government sent an expedition to that island, in the year 1791, in order to its propagation. Several hundred plants of it were brought and distributed, at St. Helena and in the West India islands; but, owing to the easy growth there, of many edible productions preferred by the inhabitants, it has been hitherto propagated rather for ornament than for use. It is somewhat similar to the fig tree, with larger leaves; it grows to the thickness of a man's body, and to the height of about forty feet. The fruit is a nearly globular berry, about nine inches long, filled with a white farinaceous pulp, which is best when gathered before it is quite ripe, and is, in consistence and flavour, a little like new leavened bread. One stem was sent from France to Cayenne during the revolution, and so numerous a family has been obtained from its shoots or suckers, that a considerable quantity of plants was lately received in France from that original stock. This tree is said to be one of the finest known. Some of its

varieties bear seeds, which are mealy like chesnuts. When the roots of the bread tree are wounded, they, like those of the fig, pour out a milky juice.

The only tree of the fir kind with which I met, is the *pinus Araucana*, or *pehuen;* but it was in the woods of Brazil, in the latitude of Rio de Janeiro, where I found it, and not in Chile. I was informed in the latter country, that it grew in the parallel of the river Bio-bio, and from thence to the straits of Magellan. The climate of nearly all Chile is too dry for any of the fir or cedar trees; yet, in a country where wood for building is so scarce, the experiment of sowing in the Andes some seeds of the hardy fir and larch tribes of Europe might prove successful, because there are many moist spots in those mountains, where they might thrive, to the use and benefit of the inhabitants. The cones which the Araucana pine bears, are very similar to those of the pineaster, but more spherical, and as large as a small human head: they contain seeds which are like elongated chesnuts, and are sold roasted in the market places of Rio de Janeiro. The tree, at a distance, has in some degree the appearance of a silver fir; but the leaves are above half an inch broad, in the form of blades an inch and a half long, drawn or curled in, and prickly. The earliest travellers in Paraguay, and in the south of Brazil, describe this tree as growing there to a considerable height and size, affording food to the Indians with its fruit: they call it the stone pine, probably from the tree of that name which grows in the south of Spain, and bears nuts also, but different in quality and size. Having brought with me some seeds of this Brazil pine, I understand that there is no doubt of its being the same as the Araucana, a name which it therefore does not exclusively deserve. The description given by the Abbé Molina answers to it in every respect except one: he mentions that the cones are smooth and ligneous, whilst those which I got in Brazil, were still more rough and scaly than the cones of the pineaster. In the same account it is also stated, that this tree is much cultivated in Chile; but I did not observe it in those parts which I have visited. The existence of a fir tree within sight, would have been too singular an object to remain unnoticed,

and I should have almost hailed it as the meeting with an old friend: the country about Conception is probably that, where Molina found so many.

In the Swiss mountains, and on the high ridges nearest to Italy, the last tree seen is most frequently the larch, which, at an elevation of four or five thousand feet, becomes of very small and stinted growth, and at last leaves the ground entirely free to alpine grasses and pasture. Below the larch, or mixed with it, are the silver and spruce firs, and sometimes a few of the species called Scot's fir; but these are more generally closing the rear, in some low swampy spots, few in numbers, of a small and unseemly growth, the least esteemed of any; the larch the most, which, either unwillingly mixing with the other tribes, or unwelcome to them, occupies but few of the high eastern tracts, whilst the spruce and silver, but particularly the spruce, are very generally distributed over the whole country. Below the fir tribes are the beach, the oak, and other forest trees. There the face of the land varies incessantly, from soft to hard features, from a smiling to a stern countenance; its scenery, from luxuriance and magnificence to majestic sublimity and expressive wildness. The trees unite with the ground in producing these effects; and whilst warm tints enliven the lower vallies, the dark hues of the fir are finely contrasting above, with fields of ice and summits covered with perpetual snow. The lofty pine seems to vie with the tumbled rocks, in assuming bold and threatening attitudes; sometimes its huge trunk stands on a large stone, so bare that no trace is seen of the support by which is was at first reared; sometimes it dashes out of the rock, as if holding to it by strong muscular powers; or weakened by great age, it is seen leaning on its more vigorous companions. So well fitted to the powers of human sight are the various changes of scenes there, that they are seldom otherwise than precisely such, as the traveller, in his progress, is either able or desirous to command and enjoy; and so expressive is the countenance of Nature, that whilst he is gazing on it, she seems as if answering to him, and making a strong appeal to his feelings in her favour. Very different indeed from this, shall we find the scenery of the Andes in Chile, when we arrive at a near view of them. But they are not

visited and crossed for the gratification of mountainous landscapes. The eyes of the traveller are occupied with some object in his own mind: some metallic vein would perhaps please him more, than a fine prospect and the sight of Nature in a rich dress: if so, she cannot be too naked and inanimate for him.

In passing over the Andes, from Mendoza to Santiago de Chile, the eastern ascent is nearly destitute of trees, although it is of considerable breadth, and formed of several lower chains of mountains with intermediate vallies. But there is, on this flank, such an appearance of general combustion, of crudeness and sourness of soil, that the traveller is not surprised at its scanty vegetation. The western descent is not so generally barren. Whether this difference of feature, between the eastern and western sides of the Andes, be only marked in this part of the chain, or exhibited all along it, might be an interesting subject for investigation, and if found to be its general character, might be connected with the circumstance which has been observed, that volcanoes are, or have been, more numerous and active on the eastern than on the western cordilleras, where the higher ridges are divided into several branches. After having passed the *cumbre*, called the pass of the volcano, and descended about half way down the Chile side, at a height of perhaps six or seven thousand feet above the sea, the first tree seen is the *quillai*, or *quillaja saponaria* of Molina, which, at some distance, looks very much like a beech of ordinary size, fifty or sixty feet high. It generally grows insulated, and is sometimes seen at the top of the ridges of the lower mountains of Chile in the driest situations, whilst their sides are nearly bare. Its bark, holding a compound of alkaline and oily substances, is a natural fabric of soap, and is an article of small inland and foreign trade: it is first macerated, and afterwards stirred in hot water, when a lather rises, more pungent however than cleansing. The principal or almost only consumption of this bark is by the women of Chile and Peru, for washing their long and strong black hair, of which it is believed to promote the growth. This is the largest forest tree which I have seen in that country, and indeed the only one which seems to deserve that name, unless others be found about the Bio-bio; for when a traveller

complains of the want of trees and vegetation, he is always referred there for them. A greater moisture must undoubtedly render those southern borders of Chile, very different from the other parts of that country.

That the soil of South America is fertile in an extraordinary degree, appears evident in almost every part of it; and that the land of Chile, when irrigated, is perhaps the most productive of any, may be conjectured: but, that a given space of land there, does not yield at present so large a crop of corn, as the same extent does under good English agriculture, may be said of that country, and probably of all South America. When we are told of the corn lands in Chile yielding sixty or eighty for one, we are most incorrectly informed; and when the abundant produce of Africa and America is extolled, unless such statements be qualified, and the standard known by which they are to be taken, no useful information can be derived from them.

If we cast up the account, merely between the numerical amount of seeds deposited in the ground and the return yielded by the crop, and if we suppose the process of sowing to be the same throughout the world, we certainly, then, can understand this part of the results of agriculture, and judge from it of the comparative state of husbandry in different countries. Thus we may state, that England yields, in wheat, a mean return of twelve or thirteen for one; France six or seven; Germany five or six; and by taking for granted that, by drill or broad-cast sowing, the same mean quantity of seed is deposited in the three countries, the statement helps us to judge of the skill displayed in their respective agriculture, or of the fertility of their soils; but it helps us no farther, and by extending that standard to any country without explanations, and without qualifying the kind of produce to which it is applied, we shall discover that, in some, the mode of sowing is such as to render it entirely fallacious in its most important results in regard to wheat, and that, in others, the staple produce may be Indian corn yielding many hundreds for one, whilst wheat may not return twenty. Thus, if we take a comparative view of this last produce in England and in Chile, we shall find that, in the latter country,

a good crop of wheat will yield twenty five for one; and yet, that the English farmer who gathers forty bushels of it from an acre of land sown with two and a half, obtains a more considerable return, than the Chileno does from the same space of ground, although the English return be only sixteen, and that of Chile twenty five, for one. This will be exemplified, when we are in Chile, by the difference in the process of sowing.

The quantity of seed sown being generally the least valuable outgoing for a crop, a more comprehensive estimate of the return of lands will be made, by taking also into account, the value of the manure and labour requisite, in order to get a field into good bearing; and hereafter we shall see, that the land of Chile likewise exhibits a considerable superiority in regard to both, owing to the little expence of seed and labour, with which a good crop of wheat may be raised in that country, without any manure whatever. If that superiority do not yet extend also, to a greater return of wheat and barley from a given space of ground, than is obtained in the most fertile and best cultivated parts of Europe, it is owing to a want of industry and skill in agriculture, and not of powers in the soil and climate.

A still more comprehensive estimate is that by which rent, tithes, and indirect charges, are brought into the account of a field of wheat, the result of which would often shew that, in some countries of Europe, where the return is only five or six for one, the farmer prospers more than in others, where it is twice that amount. The British agriculturist, whose soil, speaking generally, is neither uncommonly fertile nor of easy management, may be the more proud of having brought his land to bear a heavier crop than perhaps any other in the world; and, by shewing how the gifts of Providence may be most increased on the least space of ground, he deserves the gratitude of his fellow creatures. His natural activity and industry, with the pressure of public burthens, have led to this, much in the same manner as formerly, a gradual increase of the duty on spirits led the distiller to improve his still, and so well to fit it to every additional tax, as to be, for a long time, rather gaining ground on the public revenue than gained upon by it. But whilst a display of ingenious

industry in the manufacture of spirits, may be drawn forth with advantage to the State by such means as these, it cannot in agriculture. To be able to answer the wants of an increasing population at the lowest possible rate, should be the principal incitement and emulation of the farmer: his hopes of profit should rather rest on a less expensive culture of his land, and a more abundant crop from it, than on some casual turn of circumstances for raising the price of its produce: his views, rather be, fully to command all the necessaries, than many of the luxuries, of life; a purse never quite empty, than one entirely full. His life is by nature destined to be one of retirement, and of a steady persevering and watchful labour; himself, alike a stranger to the indulgence and transient enjoyment of luxuries sometimes obtained by other more speculative pursuits, and to the anxiety, distress, and bitterness, which often attend them. Farming is, of all concerns, the least capable of bearing large outgoings and of playing high stakes, with general and permanent prosperity; the least intended for the expectation of great profits, or the disappointment of heavy losses. In other pursuits, men can more or less fit their business and situation to the change of public and private circumstances; in agriculture they cannot. The farmer is seldom a man who can turn himself about, and face many attacks made on his purse previous to its being replenished by the sale of his crops. Field work, not money transactions, should engross his time and his abilities. An accumulation of demands on him, grounded on the expectation that the enhanced price of the produce of his land will ultimately make up for all, compels him to run risks which were not intended for him. Annoyed, worried, and often distressed, by repeated and dreaded calls, he is driven from his home: the necessity of raising money, or the impossibility of so doing, make him forsake days after days his farm and his work: a most precious time is lost, his business is neglected, and his spirits are broken down: his life becomes any but that which Providence seems to have intended that it should be, industriously but placidly laborious; domestic, and patriarchal.

CHAPTER III. GENERAL FEATURES CONTINUED.

When the pursuit of agriculture is rendered one of cares and anxiety, very liable to doubtful results, often ending in distress, requiring a comparatively large capital previously possessed or raised, and offering the possibility of its being speedily lost, the young stock of an increasing population, when left to seek their own subsistence, will be unable, and if able unwilling, to run for it into this channel, which, of all others, it is the greatest interest of a State to keep open to a due proportion of new generations, otherwise they all will crowd into the upper part of the building, whilst its foundation is becoming weaker. It will perhaps be allowed by many, that agriculture is a more permanent source of prosperity than trade, although they both may unite in increasing it; that the pursuit of farming is one which least of all can, under ordinary circumstances, fit itself to the present complicated overworking machinery of the financial system of Europe; and that, from the first process of preparing a field for a crop of corn, to that of consuming the produce of that crop, the transactions and accounts cannot be too few, too simple, and too small. Nor does it appear, in the present improved state of civilization, and of social intercourse among nations, or in the view of their mutual connections with, and wants from, each other, that the interchange of the primitive alimentary produce of the land can be checked by public restrictions and burthens, with any advantage to a State, unless to prevent an extraordinary scarcity. That interchange tends to the prosperity of the community of nations, and each of them, in some way or another, obtains its share of the general welfare. The cheaper that produce can be sold to the consumer, the better it is for a people; but far best indeed for that people, if they themselves be able to grow it at home, as cheap as any where else. And very threatening must the dreaded or existing scarcity be, to render any interference with the first necessaries of life, either just or ultimately beneficial to a nation, if the principle acted on, be that of freedom of exchange with others; because, as the grower is by it sometimes exposed to the disadvantage, and the consumer to the benefit, of foreign imports at a low rate, at other times, the scales will, if not checked, move the other

way for and against each, and a mean of results be established for both, without any very considerable variations at any period, unless of very general calamity. But if the system be, that of controuling and regulating the exchange of food according to circumstances, it becomes necessary, in order that it may be rendered just towards all, that the duties, restrictions, or prohibitions, by which it is so regulated, should be incessantly modified and fitted to the various changes of those circumstances, as they happen to effect the grower and the consumer, whose standard of transactions together is, in the former case, graduated by themselves, and in the latter, by their legislature.

The current of knowledge and improvement appears to be gradually carrying along with it, into the councils of the most enlightened nations, the conviction that manufactures and trade are most extended and rendered useful to States, by removing as much as possible burthens and restrictions from them; and that where the food and raw materials can be procured at the lowest possible rates, and the means of producing the best works with the least possible labour and expence, are encouraged and protected, there, must consequently be the most and best trade. Formerly the effectual means of advantage to the public, and of encouragement to the manufacturer and trader, were thought to be high duties and prohibitions, both so very injurious to morals, and often to trade itself. But now, to render their pursuits a trial of skill and industry among nations, and an object of emulation for underselling one another, is found a more permanent and less injurious source of wealth. In short, experience seems to shew, that it is far more advantageous to a State, to enable the consumer to buy cheap, than the vender to sell dear; and, above all, the produce of the land and the necessaries of life. Among statistic investigations, that which would offer a correct statement of the respective results of agriculture in different parts of Europe, deduced from the most comprehensive estimates, would perhaps not prove one of the least interesting and useful in these times.

The traveller who, from the difficulties and labour, the cares and anxiety, which attend many pursuits in Europe, is led to witness the indolence and ease, the indifference and carelessness, with which they are often followed in South America, is struck with the dispensations of Providence, and with the mixture of good and evil which seems to flow from the two opposite states.

CHAPTER IV.

GENERAL FEATURES CONTINUED.

A VERY characteristic feature in South America, along the sides of the Andes so abundantly productive of metals, and probably more strongly exhibited in Chile than in any other country near that chain, is, that although the veins run in so many spots near the surface of the ground, and the soil be so generally metallic, yet it is not the less productive, but on the contrary displays, when irrigated, very strong powers for vegetation, of which, in that country and in its eastern parallel, the almost uninterrupted sunshine is probably the principal cause. This is a twofold gift, which the earth very seldom grants to her tenants. Both the husbandman and the miner may here interpret in their favour, and turn to their own account, the verses of La Fontaine, which were not intended for the latter, and indeed are seldom applicable to him.

" *Travaillez, prenez de la peine,*
" *C'est le fonds qui manque le moins.*"—*La F. fab.* 91.

It is admitted as an axiom, that every thing in this world is ultimately for the best; therefore must it be granted also, that man has done well to dig and search below what is required, for obtaining a good depth of vegetable mould, and an abundant harvest for the seeds deposited in it, although he may have done so still more to his misfortune than to his comfort. To beings, if any, hovering in the higher regions of our planet, and feeling an interest in the daily sight of our toils, as some among us may do, in following the busy work of the industrious bee or of the persevering ant, we must appear as spread over the surface of an orange, scratching, biting, and piercing the rind, but without being able to get at the best part of the fruit.

CHAPTER IV. GENERAL FEATURES CONTINUED.

In and along the high range of mountains which bound the west of America, metals of almost every description are found in great abundance. It is now three hundred years, since both flanks of the Andes have been sustaining the attacks of a numerous host of miners, whose right wing is in New Spain, center at Potosi, and left wing in Chile. They have pierced the sides of that immense chain in many directions, and made them bleed copiously: but in many places the assailants are exhausted, and the work of mining goes on but faintly. The metals mostly extracted during that period, gold, silver, and copper, have been circulated in various shapes all over the world, and with various effects. This leads the mind to imagine, showers of the precious metals flung out of the bosom of those mountains by Nature, to crowds of children begging by their sides, racing and scrambling for them, as they sometimes do, for some pieces of coin thrown to them from a travelling carriage: some get a good picking, others only a tumble.

SILVER, of which such large stores have already been found in the Andes, appears chiefly to lie in very elevated regions of mountains, on each side of the cordillera, or sometimes even in the higher central ridges, and to extend with more or less abundance along the greatest part of the chain. It is thought in Chile, that in the silver mines of Uspallata near Mendoza, in latitude about 32° 30′ south, formerly rich and perhaps still so, was met a continuation of the metallic veins of Potosi. The distance of nine hundred geographical miles appears too considerable, to admit this in any other shape than as a vague conjecture; but some analogies may be found between them; they are both situated on the eastern side of the great chain, and as it were, in some of the steps leading to the higher central cordillera. Indeed it is the opinion of some experienced and well informed miners in Chile, that the silver ores of that country, along the chain of the Andes, may be described as nearly inexhaustible; and that such is the formation of its lower flanks, that more or less of that metal exists in almost every part. How far to the southward and towards the straits of Magellan this fecundity may extend, is yet unknown.

Below that chain, some fifty miles or more to the westward, in the bowls of

Chile, spots are found which likewise contain silver; and the same circumstance occurs on the eastern side, among lower mountains, not far from Cordova and the road leading from thence to Potosi: but it is only produced in small quantities. The metalliferous veins gradually decrease as their distance from the Andes becomes greater, and they soon entirely disappear.

In Chile, in the small mountains below the Andes, when the traveller happens to be passing over some spots of the colour of wood ashes, very like fine barilla in appearance, he will often see that the miner has, in many places, tried the ground for silver, and opened here perhaps only a hole without success, but there has followed a vein to a small depth. These blueish barilla-like places form a characteristic feature of the bowls of Chile, of some of the lower mountains of the chain of the Andes in that country, and also of its higher cordilleras, being seen in distinct masses which contrast with the tint of the ground near them. They frequently occur where the soil is not alluvial, are sometimes very extensive, at other times only in small beds; and the sight of them was invariably accompanied with the idea, that I was looking at deposits of sea shells, which had undergone some fermentation, as they often exhibited the appearance of having been partially or slightly charred.

The eastern parts of the American continent, and particularly the mountains of Brazil, have often undergone an eager search for silver, but with very little success, if any. The ornaments of this metal, found in the possession of the Indians there, and near Rio Plata, led at first to the supposition that it existed in those countries, and to many unsuccessful expeditions for the discovery of the spots which had produced it, but they never could be found; and it was afterwards concluded, that the Indians had brought the silver from the Andes, or that it had passed through their different tribes, by the means of trade and wars, from west to east. There remain, in Brazil and in Guyana, some mountainous tracts of considerable extent, which have not yet been explored, and are therefore still unknown. But gold appears chiefly to constitute the metallic wealth of the eastern mountains.

The most extensive mines of silver now wrought, are those of New Spain, like-

wise situated in a continuation of the chain of the Andes; mountains which seem exclusively to possess the power of producing, at least in any considerable quantity, this metal in America. But we learn from Baron Humboldt that, although masses of native silver, of considerable weight, have often been found in those mines, and notwithstanding the great abundance with which it has been extracted from their metallic veins, yet, generally speaking, it is rather from their extent than from the richness of their ores, that those of New Spain are so productive. The passage and access to them from Europe are so much shorter and easier than to those of the Andes of South America, and the means of working them so much more considerable, that the miners of Mexico would naturally gain much ground over those of the southern continent, although many spots, of greater wealth in silver, may exist in the latter.

The rock which appears to form the base of the principal silver mines of the Andes of New Spain, is a clay slate, and the absolute height of those mines is stated in Humboldt's to be, from five thousand nine hundred to nine thousand eight hundred feet. The spots where most of this metal has been extracted in that part of America are *Guanaxuato, Zacatecas, Catorce,* and *Real del Monte.* Some of the metallic veins lie at the top of the high central cordillera.

The districts of the silver mines of *Potosi, Oruro, La Paz, Pasco,* and *Gualgayoc,* in or near upper Peru, are in regions of which the elevation above the sea surpasses ten thousand feet, the last being about thirteen thousand five hundred; and we learn from Mr. Helm that, on his way to Potosi, on entering the higher grounds, he found them to consist of very firm argillaceous slate of various colours; and that the mountain of that name, as also those in its neighbourhood, were chiefly composed of that substance.

I have visited the silver mines of *Uspallata,* the last of importance in the southern Andes, on the eastern side of the central ridge, and if I might venture to estimate their height, I would suppose it to be from six to eight thousand feet above Mendoza, and from five hundred to a thousand more feet above the sea. They

likewise rest on a base of a hard, yellowish green, slightly micaceous slate rock, which is seen to form, not only the greatest part of the mountain of Uspallata, but likewise the inner and higher steps of the ascent to the central cordillera, beyond the bowl or valley of the same name, which is about twelve miles wide. The stratification of this rock is very conspicuous and uniform; and its dip, as near as I could judge without a compass, is to the northwest, at an angle which, in most parts, may be about forty degrees. Where the dip increases, the strata generally become thinner, and in a few spots where it is very considerable, they are reduced from the thickness of a few feet to that of some inches.

From the great sameness in the appearance of this first longitudinal eastern mountain of the chain of the Andes, which I was informed extends about two hundred miles north and south of Mendoza, and whose mean height above and near that town might be estimated at eight or nine thousand feet, there is reason to suppose that it is chiefly formed of the same argillaceous shist. But this, as well as the other mountains that have the same base and lie further in the chain, are covered with substances of a calcareous appearance, which exhibit, in the most striking manner, signs of a general combustion of that crust, and of the higher part of their declivities towards the basin of Uspallata. It is on the descent into it, and amongst the *debris* of that apparently burnt crust, that the silver mines are situated. The argillaceous rock is seen sometimes throwing up summits above the whole, or piercing through the sides below, so as to surround a considerable part of the bowl, in the same uniform undisturbed state, and having been evidently blackened by the smoke of a volcano, now extinct, on the south side of it. The prevailing wind here being from the southward, would naturally drive the smoke towards the slate rocks, which, on this slope, are very much darkened, whilst, on the other, they are of a bright colour. The crater lies low, and presents the appearance of the bursting open of the crust with rather a short than a continued action. I brought specimens of the rocks and substances of this interesting spot, over which we shall soon have an

opportunity of travelling again, as it lies in our way over the cordillera, from Mendoza to Santiago.

It thus appears, that a general feature characterizes the regions of the principal stores of silver in the Andes, along a range of four thousand three hundred geographical miles; the metallic veins being situated at a very considerable height, and on a base of argillaceous shist of very great depth.

GOLD is most frequently and most abundantly found in smaller mountains or in hills, which form bowls and vallies east and west of the Andes, much below the height of the chief mines of silver; or in alluvial soils along that chain. But so many and so extensive are the spots in which this metal has hitherto been obtained, that it may be supposed to exist, with more or less abundance, in the greater part of the hills and lower mountains of South America: it is also found mineralized with copper, and, in the higher regions of the Andes, very generally with silver, in small proportions to these metals. The production of gold is not therefore, like that of silver, confined to the Andes, and the metallic countries near them, but, on the contrary, and in proportion to the space of ground which the gold districts occupy in Brazil, the east of America has yielded more of it than the west: and if it do not now produce it in the same abundance as formerly, it is probably more owing to a want of encouragement for enterprize, and of industry in the inhabitants, or of security in the prosecution of their labours, than to a denial from the soil. So that whilst silver is the principal production of the high chain of the Andes, gold is that of smaller mountains in Brazil, the mean height of which we find stated, in Mr. Southey's interesting history of that country, at about two thousand six hundred feet above the level of the sea, and none of whose summits reach the line of perpetual snow.

The alluvial soils of the districts of *Sonora*, in northern Mexico, and of *Choco*, in New Grenada, both on the western side of the Andes, are some of the spots which have hitherto produced most gold in the west of America, comparatively to their extent. In Chile, it is seldom sought in the higher Andes: but below them, there

are probably but few mountains or hills, and perhaps not any stream, without it. When found in veins, it is most frequently in hills of striking tints, of which the predominant colour is red or crimson. In the gold mounts near Guasco, which have been opened in all directions, it is not the soil only, but also some part of the vegetation on it, which exhibits that appearance. The mines in them are generally of very small depth, and many are abandoned. In some of these, a very thin white stratum, of a calcareous appearance, was pointed out to me in the rocks: it hardly exceeded in many places the fourth part of an inch, and I was informed that it generally was the sign of a good vein. In these mounts, copper is also found in abundance. I could not observe any indication tending to support the supposition, that this last metal was superincumbent to gold; but a closer and abler investigation might lead to a different result. Gold, in that country, is chiefly obtained by washing the soil, which is generally of a yellow or yellowish brown colour, and it is said that the latter is the most productive of it. The country of the Araucanos is known to contain this metal, and it is even described as holding it in very great abundance, much being found in its streams; but the information yet obtained on this subject is probably of a doubtful nature.

In Brazil, gold is likewise commonly obtained by the process of washing the soil, and it is more abundantly found there in the former beds of rivers, which are called *guapiaras* or the highest channels, and in *taboleiros* or table grounds by their sides, than in those which they now occupy. When got in the same manner in Chile, it is also, most generally, from the upper and older banks and channels of rivers, the size of which indicates that bodies of water, hundreds of fathoms wide and of a proportionate depth, have formerly been flowing, where now are streams perhaps only one deep and ten broad. The gold miners likewise dig for it the soil of former channels of considerable magnitude, but where no rivers are now seen: or if they work along some mountain stream in that country, they prefer the old alluvial deposits, or that which may have been brought down by a heavy winter's rain.

I have already mentioned that, on the eastern side of the Andes near Mendoza, are also seen old channels of very considerable breadth, in which now flow small streams only; and it is stated in Humboldt's, that from the Oronoko, at a hundred or hundred and thirty feet above the highest present increase of its waters, may be seen black bands and erosions, indicating the ancient abode of waters; that figures sculptured in rocks of a considerable and now inaccessible height, were likewise observed along the banks of that river; works which, according to traditions among the Indians, were performed at the time of the great waters. The former banks of the broadest old channels, in Chile, are chiefly formed of alluvial deposits; but I well remember noticing with astonishment, from the upper roads between Valparayso and Guasco, and among the lower mountains in that country, erosions which also indicated a long course of deep rivers, where none are now flowing. These appearances, observed in many parts of South America so distant from each other, form a general and interesting feature, perhaps well worthy of further investigation.

MERCURY or quicksilver, exists in considerable abundance in the chain of the Andes, and principally where it is most required for the purpose of amalgamation, the process by which the greatest part of the gold and silver obtained in America are separated; that of smelting being rendered less expedient, in the many metalliferous districts along those mountains, where fuel fails. But, before the conquest and some time afterwards, smelting was the only process in use among the natives and their conquerors. Amalgamation by means of quicksilver and salt was first practised in Mexico, by a Spaniard, in the middle of the sixteenth century, and was soon afterwards introduced into Peru. Like silver, mercury is chiefly found in the high ridges of the Andes, in Mexico, New Grenada, Quito, Peru, and Chile, either in veins or beds of cinnabar; seldom in a pure metallic state; and there are indications of its existence in most parts of that chain. But notwithstanding its great consumption, and the expence of procuring it from foreign countries, only three mines are wrought for it; two in Mexico, and in Peru that of *Guancavelica*, which contains it in very considerable abundance, and is thirteen thousand eight hundred

feet above the level of the ocean, probably the highest mine from which any metal has yet been obtained in the world. The quantity of mercury required for amalgamation in America, has been hitherto made up by large supplies drawn from the celebrated mines of Idria in Carniola, and from those of Almaden in Spain: but the late wars and disturbances have often been the cause of its being very scarce and dear in several mining districts; an injury which is considerably increased, by the custom of their respective Governments, to carry on themselves and exclusively this branch of trade: they purchase or import the quicksilver, and retail it to the miners; a monopoly which has likewise contributed to keep shut the native stores.

PLATINUM is a metal which is only obtained in South America, in the districts of *Choco* and *Barbacoas,* between the second and sixth degrees of north latitude, on the shores of the southern ocean, and has not hitherto been discovered elsewhere in the world: it is produced in small quantities and in grains, by alluvial soils which also contain gold. What gave rise to the supposition that it existed in Chile was, I believe, a metallic ore near Copiapo, which the miners have not yet been able to reduce, but which is thought by some to contain chiefly silver.

COPPER, although very abundant in many parts of Western America, in and near the Andes, is not so extensively produced as gold and silver; but it exists along that chain, from New Mexico to the southern parts of Chile, in many spots, the situation and climate of which have not hitherto offered means or advantages sufficient for its extraction. Some mines have been sparingly wrought in New Spain; but the countries where this metal is principally obtained in America, are the Caraccas and Chile, particularly the latter, where, independently of the exports made of it to other parts of North and South America and to Europe, considerable quantities have, of late years, been shipped to China and Bengal, in return for the produce and manufactures of those countries: a circumstance which has tended to give more activity to the copper works of the Chilenos, by enhancing the price of copper in the mines, from twenty four or twenty six shillings the quintal, its former standard, to about fifty, the price at which it was selling in the year 1821.

But in Chile, land carriage is so difficult and laborious; wood, water, and fodder, are so scarce, that the advantage of mining for metals less valuable than gold and silver is very much counteracted, and must gradually become more so, until private exertions and public encouragement shall have contributed to remove the difficulties and expences which now attend copper mining: these are every year increasing most, where the ores of copper are most productive and abundant, in the neighbourhood of Copiapo, Guasco, and Coquimbo, owing to the excessive driness of the climate and the destruction of the woods. The distance of the spots from which water and fuel must be brought, the great number of men, mules, and asses, required for that service, as also for the conveyance of the ore from the mines to the smelting works, and of the metal to some shipping place; the maintenance of so many beasts where fail, not only natural moisture for vegetation, but even streams for artificial irrigation, are all causes of such considerable and gradually increasing expences, that if the present high price of copper in Chile were to occasion some change in the channels of that trade, and a diminution of the demand for some years, many mines would be abandoned. These difficulties, and probably some want of skill, are likewise operating against the quality of the metal, the improvement of which is less attended to, than the economy of the process for obtaining it. Such veins only are wrought, as are most productive and least inconveniently situated; and as there are neither skilful workmen, nor timber trees sufficient, for carrying down the excavations to much depth, when the ground threatens to fall in, the work is shifted, and the mine opened again lower down the vein or higher up it, if it can be traced and followed; if not, another must be found, and the difficulty is not to meet with it, but to fix on one sufficiently rich in copper to render it worth the labour. In that country the ore is roasted and reduced, and the metal is only once refined in a reverberating furnace.

Some accidental observations made, and information received, during excursions in mining districts of Chile, would lead to suppose, that the line of copper veins and deposits, or at least that of mines wrought, in that country, runs chiefly in a

northwest direction; beginning in the Andes and about the 36th degree of south latitude, where considerable masses of native copper have been found, particularly at Payen, long since abandoned, owing to the want of population and security; appearing again near Aconcagua, and from thence continuing its course northwestward towards Coquimbo, Guasco, and Copiapo, approaching the sea more and more until it loses itself in it.

IRON exists in most parts of the chain of the Andes or near it, in large stores which, at some future period, may be opened for the use of America. It is very abundant in New Spain, where some mines have occasionally and very sparingly been wrought, when the importation of supplies from Europe was interrupted. In South America there is not population, fuel, or water, sufficient to reduce this metal with advantage, and it is therefore found preferable to import it. Iron is found in Chile mineralized with various substances, and in many spots in very considerable masses of pyrites, which are generally called by the miners, brass and bronze, from the erroneous supposition that copper forms the principal of their component parts, and that it is naturally alloyed with zinc and other metals. I brought some specimens of a large store of this kind lying between Coquimbo and Guasco, and upon investigation they have proved iron pyrites. It is stated by the Abbé Molina, that brass exists native and in a malleable state in Chile. The magnetic iron ore or loadstone may be plentifully obtained in that country, and in other western districts.

LEAD is found in the Andes in very considerable abundance from New Mexico to Arauco, mineralized with silver, and in various other shapes. Chile could yield large supplies of it; but it is seldom attended to any where in the west of America, and indeed, like iron, is very little wanted. There the lead works, which in many parts of Europe are necessary, in order to carry off water and supply it, or for other purposes, are either unknown, not practicable, or seldom required. Few sportsmen are found for the consumption of shot. Woods are there so hard, as to afford in many cases a substitute for iron, of which but little is used in buildings. Several culinary and working tools, pans, stills, or other utensils, are manufactured in Chile of

hammered copper, and from thence exported to many other parts of America. Horses in the southern continent, with the exception of a few used by Europeans, or destined for long journies, are made to work, and to work hard, without shoes.

TIN is likewise produced by the western mountainous grounds of America, in veins and in alluvial deposits: the little which is got of this metal, is preferably obtained from the latter. It is supposed to be abundant in New Mexico, and is stated to be so in Chile. ZINC, ANTIMONY, MANGANESE, ARSENIC, and other metals, are likewise abundantly found in that immense chain of the Andes, which, from what we have seen, truly deserves the name of metallic.

SULPHUR very plentifully exists in the volcanic grounds of America, and therefore all along the Andes. In Chile are masses of it sufficiently pure for use without previous refining, and this substance appears to be disseminated in the soil of that country with extraordinary abundance.

COALS, in the west of America, begin to be extensively seen at nearly an equal distance to the north and south of the Equator. They are known to abound in New Mexico and along the stony mountains. In Chile, near Conception, are considerable stores of them, which at first, and when taken from the surface, were not of a good quality, but which are now found to improve much as the mine increases in depth, and are already an article of trade and consumption at Valparayso. When the inhabitants shall know how to use them for the reduction of metals, and when their industry, now fettered by numberless duties, restrictions, and prohibitions, the effect of contracted or selfish views still strongly operating in that country and other parts of South America, shall be allowed to follow its natural course of improvement, then will no doubt many of the difficulties, now existing against the working of the mines, be removed. Between the two latitudes above mentioned, coals have been also discovered in the Andes, but in very small quantities.

COMMON SALT is more abundantly found in the west of America than in the east. On the table lands of the Andes, and in all the countries along their sides, are great stores of it. The names of *salado* or *saladio* and *saladillo*, given to so many

rivers, indicate their briny qualities, and there are several salt lakes, by the sides of which common salt may be procured in a crystallized state and fit for use. It is also found disseminated in argillaceous lands, at a considerable distance from the Andes, and is besides contained in a fossil state, in some parts of that chain or below it, rock salt being easily obtained in many spots. At Valparayso in Chile, large quantities of salt are often required for the shipping, and for the whale or seal fisheries, particularly since the discovery of New Shetland, and they are supplied, partly from beds near the river Maule between Valparayso and Conception, and partly from Peru, in the table lands of which, rock salt is found in great abundance. In the vast basins of the rivers Amazon and Oronoko, the distant settlements are often without it: in some districts, they extract it from a kind of palm tree, which forms or absorbs it in sufficient quantity, to yield much of it again by lixiviation and evaporation. In Brazil are many salt works, some on the sea coast, others by the sides of salt lakes, in the north of that country, but much of what is consumed there comes from Europe and Cape Verd Islands. The practice of drying the meat in the sun instead of salting it, which prevails in the extensive cattle districts of South America, and that of using so much red pepper with food, render the consumption of salt, for domestic purposes, less considerable than it would otherwise be; but it is largely employed in the process of amalgamation, and, like quicksilver, is obtained in abundance where it is most required for the gold and silver mines. Saltpetre is found in thick incrustations, in some of the vallies of the Andes and elsewhere. It is plentifully produced in Chile.

The Andes of New Mexico, and the chain further north called stony mountains, have been very little explored, and are therefore in a great degree unknown. Nor have the metallic properties of the Southern Andes, from the 36th or 37th degree to the straits of Magellan, been investigated. It is known that gold exists in Arauco, and still further to the south: it has even been often stated, that it is very abundantly found there, by the sides of rivers and torrents, but that the Araucanos would never allow mining or washing for it to be practised in their lands: I also heard this

in Chile; and the only part of the account which may be doubted, from the difficulty of having accurate information, is the great abundance in which this metal is said to exist in that country. Still less can the wealth of that part of the Andes, in silver and copper, be known. It is not probable that in leaving Chile, that chain should lose its characteristic feature, and the possession of these metals; but their discovery in Arauco is rendered much more difficult than in Chile, owing to the moisture of the climate, and the more powerful vegetation on the ground; whilst the latter country lies in so exposed and naked a state, that the search for metallic veins is very much facilitated. Another obstacle which occurs beyond the Bio-bio, and even in some parts of the Andes of Chile to the north of that river, is the unfriendly disposition of the Indians, who, although not in a state of open warfare, yet cannot be trusted. It is therefore to be expected that, unless some European power should effect a settlement between the straits of Magellan and the Araucanos, by which both sides of the Andes might be colonized, that part of South America will long remain unknown, as it is very improbable that any attempt for it can be made, either from Buenos-ayres on the east, or from Chile on the west: there are neither power, means, nor population, sufficient for it.

The eastern side of the Andes in the parallel of Chile, has likewise been so little explored, that its metallic properties are in a great degree unknown, with the exception of the silver mines of Uspallata, the discovery of which was probably owing to their situation near the road over the cordillera, and which appear to be now abandoned. The remoteness of those districts, the barrenness of the country, apparently still greater than on the western side of the chain, the great driness of the climate, the very small population, and the fear of the Indians, are the causes of it. Even in Chile, the ground is far from having been much explored yet, and during the last ten or twelve years, the miners of that country have found, in the Andes above Copiapo and Guasco, some new and rich stores of silver.

In Brazil, to the advantages of considerable fertility of soils, great variety of climates for the growth of all kinds of productions, rains and moisture almost every

where sufficient for the purposes of agriculture, valuable forests, beautiful sites, and extensive gold grounds, may also be added the possession of the districts where the DIAMONDS of South America are obtained. Diamond and gold mines are words which sound high in the organs of wealth; yet it has been found, even there, after a long experience, that he who turned his attention and pursuit to agriculture, and to the valuable vegetable productions of that country, obtained gold in greater abundance, than him who mined for it or for diamonds. This discovery, and some exhaustion of the mines, have greatly contributed to lessen the eagerness with which adventurers formerly flocked to them, and the gold and diamond districts have long since gradually declined in wealth. A want of protection and of encouragement to enterprize and industry, by good permanent and well administered laws, has also been a cause of the neglect into which the mines of Brazil have fallen.

The process of mining for diamonds, is by digging and washing the soil which forms the beds of streams known to possess them: the earth and gravel so taken out are called *cascalho*, which is washed in troughs, so as to free it from its finer earthy substance: the larger stones are next separated, and afterwards the smaller, until the whole has undergone the most careful investigation for the discovery of diamonds. It may be supposed, that the poor slaves, who are employed in this labour, are strictly and incessantly watched by their overseers, and that the whip, with other stimulating or forbidding instruments, has also an important office to perform. A slave who finds a diamond of a certain size obtains his liberty; and whether this proceed from the cupidity or humanity of his owner, may perhaps as well remain without investigation. Many an unlucky fellow may condense and exert the power of his sight, until, after spending nearly all his life in looking for his freedom, he shall have looked himself quite blind, and be a slave still.

The difference between mining for diamonds and for gold, by washing alluvial soils, is, that the former are not, like gold, sought for in the old and higher channels of rivers, but in the present beds of the streams by which they are brought, and which must partly be turned out of their course, to the end that the soil may be dug up for

the operation of washing: and whilst gold is amalgamated with quicksilver, and afterwards purified by the agency of fire, each diamond must be separated by manual labour, and would only produce a piece of charcoal, if exposed to a heat sufficiently intense to decompose it.

The diamond district lies in the capitancy of Minas Geraes, in about 18° of south latitude, in the *serro frio* or cold mountain, so called from its effect in lowering the temperature of the country near it. It is almost circular, about one hundred and seventy miles in circumference, and has also yielded a considerable quantity of gold. Being reserved for the Crown, this diamond ground is called the forbidden district. Some few diamonds have likewise been found in other gold grounds of the same province, and in Cuyaba; in the capitancy of Matto grosso; in New Spain; and in some other parts of America. The discovery of this precious substance in Brazil, which took place about the year 1730, and the large supplies that followed it, had a very considerable influence on its value in Europe, and the price of diamonds experienced a great depression.

The RUBY, the SAPPHIRE, and the TOPAZ, which, when in their most perfect state, are described as differing but little in their composition, with the exception of the small portion of the substances from which they receive their different colours, have not been found in that state in America, and the most valuable of these gems come from the East. Brazil has produced some, but generally of an inferior kind, principally Topazes. The finest EMERALDS, on the contrary, are found in America, and chiefly in the Andes of New Grenada and Peru.

Whoever is practically acquainted with the business of custom and excise houses and duties, must be convinced of the difficulty of having accurate statements of the aggregate annual amount of any article of small bulk and great value, which may be liable to high duties or prohibitory laws, even in countries where these are most rigorously enforced; and whoever has also some knowledge of the manner in which business has hitherto been carried on in Spanish America, will perhaps think, that to arrive even at approximate results may not be possible. It

unfortunately happens, that every additional duty laid on a community operates, in a great measure, as a new drawback from its morals; and who can state or even conjecture, to what extent smuggling has been practised, with such valuable and slippery things as gold and silver, and what allowances are to be made for it, in countries where even whole cargoes have repeatedly escaped the vigilance of custom house officers, or paid their way to a clandestine introduction? Were it even allowed, that by far the greatest part of the gold and silver extracted from the mines of America, has been entered at the custom houses, or passed through the mints there, and that the books may have been kept in such a manner, as to indicate with accuracy the annual and aggregate amount of such entries, those records do not go very far back, and therefore the early times of the production of these metals, by spoils and by mines, are involved in obscurity.

From the works of scientific travellers and writers, who had the best means of obtaining authentic documents, and whose labours have no doubt produced the nearest estimates which could be formed, and particularly from Baron Humboldt's, are drawn the following comparative statements of the annual amount of gold and silver obtained from the mines of Europe, Northern Asia, and America, in the beginning of this century.

A comparative Statement of the Gold and Silver annually produced by Europe, Northern Asia, and America, in the beginning of the Nineteenth Century.

		Marcs of Castile.	Amount in Piastres.	Amount in £ Sterling.	
GOLD.					
Europe		5,640	822,300	185,020	
Northern Asia		2,340	341,200	76,770	
America	New Spain	7,000	1,020,600	229,630	£ 2,467,260
	New Grenada	20,500	2,988,900	672,500	
	Peru	3,400	495,700	111,530	
	Potosi and the Provinces to the east of the Andes, formerly included in the Viceroyalty of Buenos-ayres	2,200	320,800	72,180	
	Chile	12,210	1,780,200	400,550	
	Brazil	29,900	4,359,400	980,870	
	Total of Gold	83,190	12,129,100	2,729,050	
SILVER.					
Europe		229,120	2,153,700	484,580	
Northern Asia		94,440	887,700	199,730	
America	New Spain	2,338,220	21,979,300	4,945,340	£ 7,319,670
	New Grenada	"	"	"	
	Peru	611,090	5,744,200	1,292,440	
	Potosi, Uspallata, and the Provinces to the east of the Andes, formerly included in the Viceroyalty of Buenos-ayres	481,830	4,529,200	1,019,070	
	Chile	29,700	279,200	62,820	
	Brazil	"	"	"	
	Total of Silver	3,784,400	35,573,300	8,003,980	

CHAPTER V.

GENERAL FEATURES CONTINUED.

WE have seen, that from the lower Oronoko and some other rivers more to the west in that parallel, to the transverse mountains of Chiquitos and the northern confines of Paraguay, and between the Andes on the west, and the mountainous regions of Brazil on the east, that internal part of South America is covered with very thick forests. The nominal owners and rulers of these vast regions are, the Portuguese Brazilians; the now independent Spanish Americans; the Aborigines, and a few African blacks; all the various stocks of whom are gradually contributing to the formation of one race of those mixed origins. But they are very thinly scattered in distant settlements, which chiefly lie on the banks of large rivers, and many of which are the remains of missions formerly under the Jesuits, now in a decayed dispersed or depopulated state, whilst the acting and ruling masters of the soil are, lions, tigers, bears, tapirs, wild hogs, monkies, and other animals. The command of the waters is with crocodiles, alligators, palometas, gymnoti, boas, or rattlesnakes: and both the settler and the traveller are made to feel, that bats and mosquitos have some share in the sway of the atmosphere. All these noxious animals are holding possession, as weeds do of neglected fields, and will quit as soon as man gives them notice that he is in want of the ground, by clearing, draining, and cultivating it. The time may come, when lions, tigers, and large serpents, will only exist in the records of the painter or graver, and when their fossil remains shall excite the same curiosity and interest, as those of the megatherium or mammoth, of mastadontes or American elephants, no longer found alive. Bones of the former have been discovered near the rivers Uruguay and Parana, and of the latter, in many parts of the high table

lands of the Andes. We will now take a short notice of some of the most remarkable, hurtful and useful, animals of South America, and begin with the inhabitants of the rivers.

CROCODILES, and alligators or *caymans*, are very numerous in the Oronoko, the Amazon, and the deep rivers which flow into them. In some they are very daring, in others timid. Perhaps, like tigers, they only become the fierce enemies of man and eager for his flesh, after having once tasted it. These large lizards, from twenty to twenty five feet long, are also found in some of the more southern rivers, such as the Paraguay, Parana, and Uruguay, but they are not mentioned by travellers, as being so numerous and dangerous as in the equatorial regions. As they at first rather hold than bite their prize, for the purpose of carrying it away, the mean of extricating oneself is by putting their eyes out, when they let go their hold; and instances have been related of this having been successfully effected by Indians; but it may be doubted, if any such performance has ever been really witnessed. Great numbers of inhabitants are every year destroyed, in the Oronoko and in other rivers, by these amphibious animals.

The PALOMETA, or *guasgarito*, is also found in the rivers and regions mentioned above, and particularly in the southern, where this little fish is very dangerous and destructive: each of its jaws has fourteen teeth, so hard that they are used as fine saws. It is related of them, that they will not attack a human being who is swimming, and nowhere wounded so as to shew his blood; but that on the sight of a wound, such is the number and eagerness with which they perform the work of destruction, that the Oronoko tribes, who preserve the bones of their dead in caves, have the bodies of the deceased reduced to perfect skeletons, by exposing them for a single night to the palometas. Some of the southern tribes are very skilful in decapitating their prisoners with the jaw of this fish; they first saw the neck all round, and afterwards twist it off. In districts to the north of the equator it is called *caribe*.

The GYMNOTUS, or electrical eel, is a fish which abounds in the rivers near the equator, and possesses the power of discharging at will its electricity: it is capable

of giving shocks sufficiently strong to kill both men and beasts; its length generally is from four to five feet; and it is so numerous in rivers flowing into the Oronoko, that they often cannot be passed without much danger, as the eels place themselves under the bodies of mules and horses, bring them down by repeated shocks, and render them unable to save themselves. Both hands must be laid on the fish, for feeling the full effect of its electrical battery. A gymnotus was lately sent from South America to France, and there still able to display its power with considerable energy; but was strangled in consequence of some incautious experiment. This fish seldom enters into the description of those which inhabit the southern rivers. It is the largest of all such as are known to possess the faculty of giving electrical shocks, and it can apply it with a more violent effect than the torpedo.

SERPENTS of very great sizes, and of extraordinary powers by their bodily strength or venemous bites, are found in the midland forests and rivers already mentioned. The boa constrictor, the first for size, beauty, and strength, is from twenty to thirty feet long, and approaching the thickness of a man's body: it is not thought poisonous, but it will encircle, press, and grind to destruction, any animal of less strength or size than the lion, the elephant, the hippopotamus, and the rhinoceros. The rattlesnake, so called from the noise which it makes with the scales of its tail, is from five to six feet long, and of the thickness of an arm: its first bite is so highly poisonous as to occasion death in a few minutes; and it can distend its mouth in an extraordinary manner, so as to afford in it, like other serpents, protection to its young, or to swallow large animals, which are said to be so terrified at the sight of this snake, as to lose all power of escaping from it. Many other huge and powerful reptiles are found in those regions; one of which is mentioned as existing in Brazil, and described as being of very great size and strength, having two hind feet by which it holds fast, whilst it springs upon its victim and brings it down.

TORTOISES or turtles are particularly abundant in the Oronoko and Amazon, where the fisheries for their eggs cause a concourse of Indians, from various parts

and tribes, to meet at the time when they are laid, in the islands and spots which are usually frequented by the turtles for that purpose. These eggs are an article of consumption and trade, and the great distance from which the Indians come in their canoes, and assemble for procuring them, as also the order which is necessary to the end that each may effect his purpose without disturbance, give to those wild spots, for a short time, some appearance of an European fair.

The MANATEE, sea cow or *lamantin*, is an amphibious and herbivorous animal, chiefly found near the equator. It is of a very deformed shape, and sometimes grows to an enormous size, its length having been described of twelve, twenty, and even of twenty eight feet; the circumference of its body, from ten to twenty; and its greatest weight, eight thousand pounds: it affords food to the inhabitants, and tastes more like pork than beef: its usual weight is about five hundred pounds only.

During summer, in the plains between the mountains of Caraccas and the Oronoko, crocodiles and serpents will remain in the sand in a torpid state, from which they are roused by the first falls of rain, when they become very dangerous to the cattle which come to feed off the first growth of grass. If any of the noxious animals already mentioned should exist in the rivers of Chile, they must be there in such small numbers and in so few spots, as not to excite any fears, nor render any precautions against them necessary. A traveller will see the inhabitants bathe, and may himself do so, wherever he goes, without hearing of them: the rivers are probably too shallow and their banks too dry, for their existence in that country.

The TAPIR, sometimes called, mountain cow, *anta*, or *hippopotamus terrestris*, is of the size of a small heifer, and approaches in shape that of a hog; it inhabits the forests near the Oronoko and Amazon, is harmless, and serves for food to the Indians: it swims and dives with very great facility, and is by some thought amphibious.

The American LION without mane, *cougouar*, *felis puma*, *pagi* in old Chileno, *mitztli* in Mexican, is not mentioned by travellers as having been so frequently seen as tigers, in the forest lands of South America, nor did I hear it noticed in the pampas

But in Chile, particularly in summer, it comes in numbers to rove over the whole extent of the alpine pastures of the Andes; and when the herds of cattle are sent up the mountains of that chain, the owners are under the necessity of taking precautions against these beasts, which are very dangerous to heifers, mules, and horses, attacking and destroying them preferably to the larger cattle: but man is, of all, the least exposed to their hostility. In the latter end of spring, when the herds can ascend the higher pasturages, the owners, who are also proprietors of very large estates, keep hunters on the mountains, who live in small huts, change their habitations as the cattle move, and hunt the lions with fire-arms and dogs. During an excursion, and at a height probably of eight or nine thousand feet, we found some of the remains of one, whose flesh had no doubt been a great feast to the hunters and herdsmen, as it is held in high estimation by them. We were glad of the bones only, which we used for fuel, as the night was cold, and we had not been able to carry up much wood: I found them much stouter than I had expected from the description read of these beasts. My guide tied our horses as near to us as possible, and we made the fire burn as long as we could keep our eyes open; they startled several times in the night and waked us: the guide pretended that lions were near, but I rather thought that the poor animals, who had been travelling and climbing up hard nearly all day, had nothing to eat, and could not without danger be left to graze at night, were quarrelling for some blades of grass within their reach. We had overlooked the necessary precautions of taking dogs with us. It is probable that in the commencement of the autumn, when the snow begins to drive the herds of cattle down from the higher grounds, these lions cross the Andes back again between Chile and Peru, and retire into the midland forests, as they do not descend into the lower parts of Chile. Molina mentions, that they are particularly fond of horses, and deceive them by the appearance of friendly playfulness, until within a proper distance for suddenly and furiously darting at them, when they take a spring, fasten on their backs, and kill them. Sometimes the herds will successfully resist them; the cows and oxen, by their usual tactics on dangerous occasions of forming a ring, with their heads

and horns outside for defence; the horses and mules, by the same arrangement, but with their backs turned out, so as to be able to kick at the enemy. It is related that in the Swiss Alps, bears are sometimes vanquished by bulls, which first endeavour to place the bear between them and a rock, and then press it to death.

The American TIGER, or *jaguar*, *felis onca*, is of a large size, of great strength and ferocity. It is to monkies what a cat is to mice, and such numbers of them infest the forests, as to be to the inhabitants the cause of much dread and mischief. Its colours are, a yellowish ground with black open spots: but some nearly black, and others almost white, are also found there. It has been stated that small tigers and panthers extend their dominion as far as the latitude of Buenos-ayres, and frequent the thin and small woods which cover some parts of the plains from thence to the Andes; but I did not hear of them, nor even notice any precaution taken against them by the people, who, with mules or with carts drawn by oxen, carry goods and produce over that part of the pampas. Indeed it is not probable, that ferocious beasts should exchange the shade and abundance of the forests, for the exposure and hard fare of the dry regions, where travellers have much less to fear from them than from their own species. As little did I hear of them in Chile, out of which they are perhaps kept by the Andes and the climate.

BEARS, with black fur and of a small size, inhabit the forests, but do not appear to be numerous: they have probably suffered considerable destruction, as their flesh is much esteemed by the Indians. They are not mentioned as frequenting any parts of Chile or of the Andes, in that parallel.

PECARIS, or wild hogs of different kinds, some of which are called *chiguires*, *apida*, and by other names, are very numerous in the forest lands, where they sometimes wander in large herds of several hundreds. They are announced from afar by their gruntings, and by the impetuosity with which they break down the shrubs in their way. We read in Humboldt's that Mr. Bonpland, in an excursion, being warned by his guide, hid himself behind the trunk of a tree, and saw a herd of pecaris pass by him in a close body, each male going before, the female following,

accompanied by her young. Their flesh is flabby and little agreeable, but furnishes much food to the inhabitants.

The GUEMUL, *equus bisulcus*, cloven footed or Chileno horse, is of an appearance between the horse and the ass, very wild and swift: it inhabits the most southern and highest parts of the Andes, having been found as far as the straits of Magellan. I never saw it, nor heard of it, in Chile; but what has been observed in regard to vegetation, applies also to animals of many descriptions, which are much more numerous in Arauco, and towards those straits, than in the dry regions of Chile.

The BAT called *vampire*, is the largest and most troublesome of all. It is found in such numbers in the forest lands of South America and near their rivers, that it is difficult to escape being bit by them in the night; a wound however so slight, that it is not always sufficient to awake from sleep; but to the cattle they are most tormenting and destructive, as they fasten on their back, renew and extend their small wounds, until insects swarm in them and gradually destroy the beasts; so that such of them as had accidentally penetrated into those parts of South America, or had been driven there by the Missionaries and escaped the tigers and crocodiles, have perished by this lingering death. The bats which are seen in the pampas and in Chile are small and harmless.

MOSQUITOS swarm to such a degree in the same forest lands, as to be, even to the Indians themselves, the cause of incessant torment. There are some rivers, whose waters are called black, which these insects dislike, and therefore do not frequent. Whoever may have been exposed to the attacks of gnats, at the approach of sunset, in some of the wild bogs of Europe, and may have observed, how they will sting off the ground the most brawny countryman at work on it, will better be able to form an idea of the effect which must be produced by numberless mosquitos, in such countries as the basins of the Oronoko and Amazon. In Buenos-ayres they are troublesome; but, on leaving the regions of rain and moisture, they become much less so, and in Chile they are seldom felt.

ANTS are extremely numerous and destructive in South America. Abroad

they attack plants, and in houses books and wearing apparel, so as to do much injury in a short time. In some distant settlements they are, in their turn, assailed by the Indians, who make pies of the largest of them, as also of a kind of worms found in palm trees. A stomach which is not exposed to wait long for its food, or straitened in the choice of it, will perhaps revolt at the thought only of such a pie; but if a contest were entered into, between it and others of the most renowned and palatable European manufacture, what the latter might gain by flavour, would, on an impartial judgment, be exposed to the risk of being again lost by uncleanliness.

In the number of many other mischievous animals and insects, may be mentioned the *chigua*, or jigger, many of which will frequently introduce themselves into the foot, in spite of shoes and stockings, lodge there, and require to be often looked for, and extirpated before the sores enlarge. Rats are supposed to have been imported into South America from Europe, and have there greatly multiplied: they attain a large size, are very destructive to plants, and will the easier undermine the foundations of houses, as they are mostly made of soft materials.

Among many advantages very justly attributed to the land of Chile, is that of the little risk and inconvenience of any kind, arising there either from animals or from climate. A traveller needs not fear much else than fleas, which are generally numerous and sometimes very large, a few bugs, and still fewer mosquitos, within doors: but a ready way of avoiding these constantly offers to him, that of chusing his resting place at some distance from any dwelling. There, on a piece of level ground, although without shelter, he will neither be interrupted in his sleep, nor exposed to catch a hurtful cold. The dry regions of the pampas, and the eastern foot of the Andes, possess, I believe, the same advantages, though not quite in so high a degree as Chile. The eastern and mountainous parts of Brazil are not much infested with ferocious beasts, but have abundance of noxious reptiles and insects. The brute creation, inhabiting the Patagonian and Magellanic lands, are still less known than the human; and in Mexico, to most of the wild animals already mentioned, must be added other kinds, which more particularly

belong to North America, such as the wolf, the lynx, the bison, the raccoon, and several more.

The LAMA, *camelus glama*, or Peruvian sheep, is principally found in Peru, both in a wild and domesticated state. It is a very useful animal, employed in the conveyance of goods, and in the work of mines. These sheep are able to carry from one to one a half quintal, up and down steep and rugged mountains, at the rate of about fifteen miles a day. Their food is a scanty allowance of grass, and they seldom drink water, moisture being derived from abundant saliva, a valuable gift in regions where rain does not fall. Their flesh is good, having the flavour of mutton; and their wool is of considerable fineness, being manufactured in that country into a cloth of superior texture and quality. The skin is also used for several purposes. After the introduction of mules and asses, the service of carriage became divided, but the lamas are still performing a very useful part.

The VICUNIA, *camelus vicugna*, often called vigonia in Europe, and the *camelus paco*, are much wilder species than the lamas, and are fond of the highest parts of the Andes. Their wool is still finer, and very valuable; but they are stated to have much decreased in numbers.

The GUANACO, *camelus guanacus*, is seen in numerous herds in Chile, and on the eastern side of the Andes, both in those mountains and below them; they look and move very like deer. This animal has been described as being sometimes of the size of a horse; but I never saw any that was even of the stature of a Shetland pony, either on the Andes or elsewhere. They are extremely shy, and form a pretty object when seen moving along some high ridge: they also frequent the lower grounds as far as the western sea shore, and are often met on the pampas: their wool is short, and they are seldom hunted.

The CHILEHUEQUE, or sheep of Chile, is mentioned as having been formerly used by the inhabitants as a beast of burthen; but whether it was the lama or the guanaco does not appear: I did not hear in Chile, that the Peruvian sheep was now found in that country, although it may be so.

DEER, of a small size, have been mentioned as having existed in South America before the conquest of that continent, and as being found feeding in the plains of Caraccas and other parts. Whether among the herds seen on the pampas, and generally described as guanacos, some may be deer or not, I cannot state; I never observed any horns in them.

OSTRICHES are often seen in considerable numbers moving over the plains, in the latitude of Buenos-ayres, and in the regions of the best pasture. Farther to the southward they become still more numerous; and on the western side of the Andes, in Arauco and its neighbourhood, they are likewise seen in flocks. They are hunted for their feathers, and require for being caught, a swift horse, as well as the good horsemanship of the inhabitants of those countries. Mr. Helm relates that having broken one of their eggs, a young ostrich sprang out of it, immediately ran to the grass, and began to feed as if previously taught.

The CHINCHILLA is a woolly field mouse, which lives under ground, and chiefly feeds on wild onions. Its fine fur is well known in Europe: that which comes from upper Peru is rougher and larger than the chinchilla of Chile, but not always so beautiful in its colour. Great numbers of these animals are caught in the neighbourhood of Coquimbo and Copiapo, generally by boys with dogs; sold to traders, who bring them to Santiago and Valparayso, from whence they are exported. The Peruvian skins are either brought to Buenos-ayres from the eastern parts of the Andes, or sent to Lima. The extensive use of this fur has lately occasioned a very considerable destruction of the animals.

The VISCACIA, or Peruvian hare, inhabits the colder parts of Peru, and has a very fine woolly fur, with which stuffs of a superior quality were formerly made for the Incas; it resembles the rabbit.

POULTRY, principally of European origin, is generally found in abundance. The traveller over the pampas and in Chile, may almost every where get fowls, which are fed on meat and corn; seldom are tender, or of a flavour equal to those of Europe. Turkies, ducks, and pigeons, are likewise domesticated; geese seldom so.

Near Buenos-ayres are quantities of wild fowls, and other birds of excellent taste; but on advancing westward into the dry regions, they become much less numerous. In this part of the world, few birds enliven the landscape, or gratify the traveller with soft and modulated warbling: In these plains and in Chile, flights of squeaking parrots, and in the Andes a few large eagles, are often all that is seen or heard in the atmosphere. The want of large trees and of insects is probably the cause of it.

Dogs, both wild and domesticated, are numerous, and particularly so in the regions of this continent which hold many herds of cattle. They are to the traveller, sometimes the cause of annoyance, sometimes of pleasure. Half a dozen of them will perhaps rush out of every, even the humblest, dwelling in his way, and frighten his horse. But towards night, and the close of a long fatiguing day's ride, he will check his beast, and strain his organs of sight and hearing, for catching from some lonely habitation, the view of a light or the sound of a dog, and the hope of soon recruiting his strength by food and sleep.

The introduction of European cattle into South America has been an event of much importance and interest, in the history of this part of the world. It was one of the practical expedients, which most effectually tended to assist the religious and moral institutions of the missionary Jesuits, and to forward the progress of civilization among the Indians, by affording the means of intercourse and trade, and by creating in many extensive regions, the main object of man's principal pursuit, when in a state of progressive improvement, property. It is worthy of consideration, that, without the communications opened between the two hemispheres, unless the inhabitants of this continent had, in course of time, been able to tame down, break, and domesticate, lions, bears, or tigers, for field labour and for conveyance, they must probably have remained deprived of those resources, which have been so instrumental to our own civilization, by their operation in favour of agriculture and commerce; or, at least, that they could only have possessed them in a very inferior degree to our own. This is a striking and interesting feature. As wild and inconsiderable tribes, they were abundantly provided with the means of subsistence, but

not with those of making a rapid progress towards what is called with us, often so emphatically and self-complacently, a civilized state, until they received them in greater abundance from Europe; and with them also, the germs of many moral and physical evils, which have struck deep roots into that new and ready soil, and the branches of which often cast a dark and malignant shade over the ground. The Peruvian sheep was unquestionably a most valuable animal, but its size and power were small, and its propagation chiefly confined to the Andes of Peru. Of the guemul or Chileno horse, too little is yet known for any conjecture concerning its faculties; and as to the unexplored southern Andes, from Chile to the straits of Magellan, although probably covered with rich pasture, and maintaining multitudes of animals, yet it would be an extraordinary circumstance, if any, of a powerful and useful species, should have existed there to this day, without having hitherto been seen or heard of.

Many parts of the plains of South America were in a great degree vacant, and as if waiting for some consumers of the pasture which covered them; whilst on our side, the cattle of Europe seemed as if having been intended for establishing colonies there; so rapidly and extensively did they spread and multiply, not only without degenerating, but, on the contrary, with an improvement of their species; for the cattle of the pampas and of Chile, which may still be considered partly as half wild and partly quite so, estimated generally, is superior in size, quality, or strength, to what cattle, answering the same description, is or would be, in most if not in all parts of Europe. The soil also, appeared as if expecting the introduction of some more congenial and nutritious plant, and the lucern, to have been the one destined for enriching it by its culture. In Brazil, however, the ground seems to be still waiting; and what the plant should be, has not been yet discovered, or sufficiently tried.

It was in the year 1556, when seven cows and one bull were first carried from Andalusia to Paraguay. They were therefore, as we observe from the description already given of the different climates between the eastern coast and the Andes, placed within the range of the best pasture lands: and here, joined no doubt by

additional importations, so rapid was their increase, that in the year 1580, a cargo of hides was sent from Buenos-ayres to Spain; and in the beginning of the following century, a million of cattle were driven from the country about Santa Fe into Peru.

Oxen and cows, horses, mules, asses, sheep and goats, all originally from European stocks, are now found in very considerable herds in Mexico; in the Caraccas, New Grenada, and Quito; in Chile and Arauco; in the pampas, particularly near Buenos-ayres and Santa Fe; and in Brazil. They are less numerous in Peru, owing to the excessive driness of the climate; and they have not been able to establish themselves and propagate their species, in the inhospitable forests between the Oronoko and the southern side of the mountains of Chiquitos, where such as had been introduced with considerable difficulty, and principally by the Jesuits, have been overpowered by hostile animals. In the plains of Caraccas, New Grenada, and Brazil, they are exposed to many dangerous vicissitudes, resulting from the nature of the climate, which occasions considerable inundations or long droughts, and from the numerous formidable enemies constantly on the watch for their destruction; but, in the Andes and the pampas, they may graze with more peace and comfort, particularly in the latter.

OXEN are used for ploughing, and for the draught of large carts: for fresh food, ox and cow beef being one of the most considerable articles of consumption in the regions of good pasture; and for drying by means of the sun into jerk beef, *carne secca*, which is sent to many distant parts, and very generally consumed by those who are not conveniently situated for procuring fresh meat. In the southern states they differ but little from each other in their size, which is inferior to the best English breeds, but superior to those of Scotland and Wales. I have seen, in some parts of Chile, oxen having short but very stout legs and shoulders, with such large bodies and necks as denoted beasts of uncommon strength: very bony and powerful, they appeared to belong to a peculiar race; but, in the northern districts of that country, they decrease in size. When I again landed in England, I was particularly struck with the contrast, between the shining appearance of its cattle and the dull

look of that of South America. The beef of the pampas is of a good quality in texture and taste, often superior to that of Europe, but never equal to our best beef: nor is that of Chile quite so good as the former. The fat is very generally taken off, for making grease and tallow. The owners seldom let this description of cattle live above four or five years, as they then shew a strong inclination to run wild. In the eastern parts of the plains, where is found abundance of good trefoil and other pasture, cow's milk is good; but towards the west and the Andes, it becomes thin, of a blueish colour, and viscous, particularly in Chile; so that, with the exception of a few spots, no good cream and butter can be obtained: with some skill and proper management, the milk might probably be very greatly improved. Indeed the inhabitants of these southern regions attach but little importance to its quality, as they seldom make use of it: with them, grease and oil are substitutes for butter, and they do not even like to draw milk from their cows, whose office is only to increase their species, until the age for slaughter arrives. Nowhere, in this part of the world, did I meet with fine butter or rich milk, notwithstanding the pains taken by some foreign settlers to procure them; but in some spots they are improving. It is thought, that there no longer exists any wild herds of this kind of cattle, all being either destroyed or appropriated. The Indians of the southern pampas often make inroads into the lands of Buenos-ayres, for the sake of carrying off the herds which are kept on private estates; a circumstance which seems to indicate, that they rove no more over the plains in a wild state. In many parts of Brazil, the inhabitants cannot obtain milk from their cows without much trouble, and what little they get is of an inferior quality: the beasts are probably not sufficiently domesticated, nor is the pasture there very fit for them, notwithstanding the great power of vegetation. The cattle of Brazil, within or near the tropics, is smaller than that of the pampas, and of Chile.

HORSES, in the southern plains, are, like oxen, of nearly the same stature, of a middling size, and of a good appearance; strong and active, without being lively or high spirited: performing their work with surprising power, steadiness, and good

temper, when it is considered that, when not ridden, they are always left at liberty and kept on the pasture grounds, without any corn or care. None of these animals, approaching the fine large breeds of cart or coach horses in England, are seen in the pampas; but they generally are of a good size for the saddle. Those of Mendoza and of Chile are often handsome; so strong and hardy as to be able to carry their riders above eighty miles a day at a gallop, with very little rest, and no other food than lucern grass allowed. They are well broken; seldom kick or rear; are somewhat stiff and awkward, gallop well, and sometimes walk uncommonly fast; but the trot is with them, and for their riders, an unpleasant pace, into which they seldom get. There probably are wild herds of horses still feeding on the pampas, but I never saw any: in proportion as the good pasture lands of Buenos-ayres are left behind, both horses and other cattle decrease much in numbers, and at the distance of one or two hundred miles to the westward of them, hardly any other herds are seen than those of the postmasters.

The MULES and ASSES of the pampas and of Chile are of good sizes, of considerable strength, and very hardy. A good mule can carry four quintals or a little more, during several days, over rough mountainous grounds, with a scanty allowance of food and water, being turned out at night, and often left to graze on very bare spots. Considerable numbers are bred in the hilly pasture lands of the northeastern bank of the Plata; in the pampas; at Mendoza, and in other districts; for the conveyance of goods and inland trade; for the supply of Peru and of other mining countries, or for exportation by sea from the Plata to Brazil, Guyana, and the West India islands. But when under the influence of a tropical climate in the eastern parts of South America, they generally lose much of their strength, and considerably degenerate.

SHEEP are to be found in more or less numbers all along the Andes, on their table lands and below them, from Mexico to Arauco. In Chile are not many flocks of them, nor is their wool fine: the breeds there are very much mixed with that of goats, by which neglect much injury has been caused to the race: good wool

may however be got by a careful selection, and some owners of estates and sheep in that country are directing their attention to this branch of husbandry. The inhabitants are not fond of mutton, but will often eat lamb. The flocks of sheep in the pampas are likewise few: the wools of Corrientes and Cordova are the best, but they are nowhere of a superior quality, and near Buenos-ayres it is coarse. In these plains, the inhabitants bear a positive dislike to mutton, not only because it is lean and has little flavour, but because they have not a good opinion of this kind of meat. It is stated that in the northern provinces of Brazil, numerous flocks of sheep, as well as herds of larger cattle are grazing; but in the Caraccas are few or no sheep.

Goats are, on the contrary, very numerous in the Caraccas, and are also kept in most parts of the Andes or near them. The natural vegetation of Chile suits them better than it does sheep; and many of the small farmers or cottagers in that country have flocks of them, from which they derive an income of kids for their table, disposing of the skins for the manufacture of morocco leather, or other purposes. Goats are likewise kept in the countries east of the Andes, in the driest regions; and although their owners often feel some reluctance to milk them, yet a traveller may have goat's milk wherever these animals are to be found, and I generally thought it preferable to that of cows, which indeed can seldom be procured. Cheese of any kind is not often made in these southern countries. The inhabitants near Buenos-ayres, and those of the province of Conception in Chile, make some of it, with which they provide themselves and their neighbours, but it is not of a good quality.

Hogs, of domesticated and improved breeds, are numerous in Brazil, where are found in abundance the best natural and cultivated productions for these animals, which there are of very good quality and flavour. But, in the more southern parts, the very few of them seen are generally of a tall coarse breed, lean, tough, and of little taste. This meat is of very small consumption in Chile, where they might easily improve the race and flavour of hogs, by the introduction of some of the Chinese or European breeds, and by taking more pains to domesticate them, and

to feed them properly. In the Province of Conception hogs are more numerous, and of a better quality: the hams of this name are in Chile the Westphalia's of Europe; but very little good can be said of them.

The CAMEL of Arabia, or dromedary, that almost venerable beast of burthen, was not found in any part of this hemisphere; and towards the end of the sixteenth century, some were sent by Spain to Peru, with the hope that they would multiply there, and be of considerable use in the countries of the Andes, several parts of which are, in many features, similar to the dry and burning deserts of Asia and Africa. But the animals, having suffered either from neglect, or from the sudden changes of temperature to which the regions of that chain and in its vicinity are liable, or from some other disappointment, did not thrive. A cause has been given for this, which marks more strongly a feature in our nature, from the contemplation of which we shrink with pain. The Indians of America, with the soil which they possessed, had been appropriated by the conquerors, who were letting them out on hire and for gain. To the fear of a diminution in this source of profit, has been attributed an opposition to the introduction of the Arabian camel, and the failure of the experiment. The climate, however, appears to form a strong ground for hesitating to admit this evidence of the ascendancy, in so extreme a degree, of selfishness over humanity, as this beast is well known to be of a constitution which requires particular care and management. The Bactrian camel of eastern Asia, with two dorsal bunches, would probably suffer less from the change of climate, and might hereafter be of considerable service to the intercourse and trade in South America, by affording the means of communications and carriage over the extensive deserts which lie on each side the Andes, such as Atacama, and several other tracts of the same nature.

APES and MONKIES, of small stature, inhabit the forest lands of America, within the tropics, in various and numerous tribes; but it does not appear that any of the larger races have yet been seen in them, notwithstanding the opinion which prevails among the inhabitants of those regions, that some ourang-outang, or great

ape, satyr, or wild man of the woods, exists in the forests, and that women are often carried off by some creature of this description. Father Gili relates, with no less gravity than that with which many other very wonderful things have been done and told by the Monks of this continent, that a lady of San Carlos, in the plains of Venezuela, passed several happy years with one of these *salvajes* or men of the woods, whose treatment of her was gentle and affectionate.

When the chain of animals is observed, and the scales by which some scientific men have graduated it are followed upwards, we find *one* link, a part of which is assigned to apes and monkies, the other to mankind. Surely, this is placing us somewhat low; and such a station never can be looked at, without its very deeply wounding the pride with which we are so generally anxious to select our connections, and the dignified feelings with which we are often apt to be animated and pleased, at the contemplation of our own nature. I trust that I may be allowed to anticipate the time, when an entire link of the chain to which we belong shall be allowed to us, and when we shall wisely maintain, and manfully defend, the full and exclusive possession of it whilst we are in this world. Therefore will I take leave, to reserve for a distinct chapter, some account of the inhabitants of our own species, in South America.

CHAPTER VI.

GENERAL FEATURES CONTINUED.

THE object of removing the dominion of Spain from America has almost every where been attained. The spots where the Spanish flag is still flying are few, or of small importance; and were it again erected in some from which it has lately been displaced, it would probably be of no avail. Whatever may be the obstacles to the strength of union, to the display of wise, enlightened, and disinterested measures, and to a more general enjoyment of that moderate share of individual freedom, with which man in a social state must be satisfied in this imperfect world, but which ought to accompany the name of independence, yet the feelings in favour of it, even where nothing more than the name has been obtained, seem so very generally to prevail in all these southern countries, that though little has yet been gained from the late changes by the bulk of the South American people, and though a general participation in the advantages and privileges which have been held out and promised to them, may not speedily be allowed to extend beyond the few who now possess all the power and the wealth, yet the number of those who still adhere to the parent country is very small, and the animosity against them, of a decided and implacable nature. With such unrelenting rancour has mutual persecution followed the successes of each party, that most of the inhabitants who were attached to Spain, or only born in that country, have either left South America, lost the property which they possessed in it, or perished.

If Spain were able again to subjugate any part of the now independent states of this continent, it could only be for a short time, and without advantages adequate to the risk and expence of the undertaking. The population is become much thinner, and the greatest part of it more than before empoverished. Gold and silver are no longer abundantly found in the possession of Indians, in streams, in superadvenient

metalliferous veins, or in pure masses lying near the surface, for the compensation of danger and the gratification of cupidity: the search for these precious metals requires, in a much greater degree than formerly, means and qualifications which are now held in a smaller measure—labour, knowledge, capital, and security. Agriculture and grazing, which have been a source of considerable wealth, have suffered much from the declining state of the mines, the civil wars, and the predatory incursions of Indians. The means of Spain are not sufficient to meet the demand of blood and treasure, which an obstinate resistance arising from deep rooted animosity would occasion, and for an effectual attempt to regain any permanent footing here. By lengthening the contest where it is not entirely ended, or renewing it where it is, Spain could undoubtedly do much harm to South America, but no good to herself.

The great bulk of the population is still kept in too much subjection and ignorance, to be able to form a just opinion and choice of the kind of government which would please or suit it best; and even the comparatively few families who possess all the lands, the wealth, the trade, the power, and the influence here, appear much divided; some leaning to monarchies, others to republics and federal unions: almost all feeling conscious, that their present political state is too imperfect to lead to much security and improvement. But whilst wealth and power are the chief objects of ambition and contention, yet in one thing they seem well to agree, which is, that no share of them shall extend beyond the parties contending for them: after every struggle and every change, the people do not appear to weigh a grain of importance the more in the scales on either side; and, on the contrary, they always come off lighter of property and numbers. Hence it is, that the different states have hitherto shewn little disposition to enter into any general measure of public union and security. European travellers, who are looked upon as coming out, as it were, of a crucible, in which all kinds of constitutions and governments have been assayed during the last thirty years, are asked to say, which of them is the purest, and would best suit their new situation.

Considerable allowance must undoubtedly be made, for the unsettled state which more or less always follows long and obstinate conflicts. The ingredients for improvement, though not yet conspicuous to a common observer, may exist and hereafter be used, as circumstances become more favourable for it; yet, a strong impression cannot fail to hold on his mind, that much indeed remains to be done; that good constitutional moulds, when these shall exist, will not be enough; that the substance which is to be cast into them, must also be of a corresponding fitness; and that unless men be made rationally good by a vigilant education and virtuous examples, they may be cast and recast over and over, the political and moral bodies thus formed can never be sound and lasting. Some years of peace would tend to display more strongly, or perhaps to form anew, many of the national features of the South Americans, and, from the influence of local and accidental circumstances, those features will probably vary here as much as they do in Europe. Nations, small bodies of men, and individuals, often exhibit themselves in various shapes, like strung figures, according to the movements of him or them by whom they are governed or influenced, and who are pulling the ropes.

There are perhaps few people and lands better formed for improvement, and for the exhibition of good national qualities, than Chile and its inhabitants; but the natural advantages possessed in that country are held in check. Its shape is such as we generally observe in the world to be most apt to create a local affection; but the inhabitants are so thinly scattered over it, that few opportunities can offer of observing if it exist or not, and a considerable obstacle is thrown in the way of its growth: that land to which they might easily become attached, is only reserved for a few. The country has a fine form, an advantageous situation, a most healthy climate, and a very fertile soil; but by far the greatest part of those who are settled in it, hold the ground which they occupy, by sufferance only or with a most precarious tenure from the owners: they have no encouragement for extending and improving its cultivation; their labour on that soil fails to foster that extraordinary and delightful endearment, which, under other circumstances, grows along with the trees

planted in it, and which may be compared to that of strong parental ties, or of happy social intercourse. The Chileno is naturally intelligent, docile, and of a temper remarkably even and cheerful; he is capable of much activity if excited to it: but when young, the road to rational improvement is not open to him, and when grown up, unless born within the small circle of the wealthy, he is held too low in the ranks of society, to feel the effect of that great lever by which human faculties are best set in motion and exerted, emulation. The advantages of allowing agriculture and commerce to run their course with freedom, and without heavy burthens, have not yet travelled to Chile, and the trade by which the products of its land, of its mines, of its few manufactures, and of foreign countries, are circulated there, is heavily laden with duties and shackles, not only in its course with foreign nations, but even among the Chilenos themselves.

It may be doubted, if the most laborious investigations can have led to a very near estimate, of what the population of this continent was at the time of the conquest, and of what it now is. At the first period, many circumstances would unite for producing on one side, and for countenancing on the other, the most exaggerated reports of its inhabitants:—An inconsiderate immoral and irreligious propensity, not wholly subdued, to deviate from the truth when any purpose can be answered by it:—Abroad, the interest of the conquerors in magnifying their difficulties and achievements, to the end that their rewards might be the greater; the love of fame, and the self gratification of increasing the dangers encountered and overcome:—At home, the same interested motives, by which many would be induced to share, at the expence of veracity, in the success of expeditions planned by their own councils, and in the bravery and glory of their own countrymen; the policy of deterring from the attempt, other powers desirous to participate in the spoils. The exaggeration would not only be generally followed up, but carried to the marvellous, by writers anxious to please their government, the heroes engaged in those expeditions, the public, and themselves. A slight engagement and resistance would produce a Tancred without a Tasso, and an Orlando furioso without an Ariosto. The records

of the missionaries, so widely extended throughout nearly the whole of this continent, are stamped by their own flocks, and even on the banks of the Oronoko is heard the observation, which often meets or follows the relation of extraordinary events, "*son cuentas de fraile,*" they are the tales of monks. Small hordes are magnified into tribes; tribes into nations: these are described as innumerable, fierce and warlike: but we observe at the same time several chiefs and adventurers, traversing the widest parts of this continent, from east to west and in many other directions by land, some with a hundred, some with fifty, and others with half a score of followers. Yet if, notwithstanding all this, and the ease with which the conquests have been effected, the Indian population must be admitted as numerous as it has been stated, so much the more gloomy becomes the feature: only a small part of it remains, and the principal conversion effected, has been from existence to destruction. Had not some changes and more humane measures taken place in their favour, it is probable that before the lapse of another century, and except in some inaccessible spots, Indians would only have been found in the melancholy records of history. To the latest accounts published of the population of the Spanish colonies in South America, however deserving to be received as the most authentic that could be obtained, this observation may be found applicable, that such have been the effects of strong spirits, the small pox, and wars, during the last twenty or thirty years, that many, if not most towns, villages, and missions, were they at this moment visited, would perhaps not be found to contain two thirds of the inhabitants assigned to them, and that several must now be entirely desolate. Brazil, in its most populous and eastern provinces, has followed a different course; the interruptions of its peace have been very short and partial; the increasing demands by foreigners for its valuable productions have caused an extension and improvement of its agriculture; and to a considerable influx of settlers from all parts of Europe, must be added the great multitudes of negro slaves, who have been imported into that country, and still continue to be landed on its shores.

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The largest political divisions of the Spanish possessions in the continent of America were the following:—

FLORIDA; bounded on the north by Georgia, on the west by the river Missisippi, on the south by the gulf of Mexico, and on the east by the Atlantic ocean; having two small settlements and seaports, St. Augustine and Pensacola, and a population of a few thousand souls. It was so named from its verdure, by the Spaniards who first settled on it in the year 1512, and passed from them to Great Britain in 1763: it was ceded back to Spain in 1783, and is now in the possession of the United States.

LOUISIANA; bounded on the north and northwest by the high lands which divide the waters between the Missisippi and the St. Lawrence or the bay of Hudson, on the west by New and Old Mexico, on the south by the gulf of that name, and on the east by the Missisippi: an extensive country whose capital and port is New Orleans, and whose population, including all Indian tribes and thirteen thousand slaves, is stated to amount to about fifty thousand souls. First occupied by the French in 1685, ceded to Spain in 1762, and back to France in 1801; it was at last transferred by the latter country to the United States in 1803.

OLD AND NEW MEXICO; bounded on the north, at the village of Taos the most northern point of New Mexico, by a line in or about the 38th degree of northern latitude, on the west southwest and south by the Pacific ocean, on the south southeast and east by Veragua in Columbia, the British settlements in the bay of Honduras and the West Indian sea, and again on the east by Louisiana. The two Mexicos were called the kingdom of New Spain, and their capitals were Mexico and Santa Fe; but, having been lately erected by the inhabitants into an independent empire of MEXICO, with the city of the same name for its capital, the denomination of New Spain is now dropped. The population is rated by Baron Humboldt at near seven millions of souls, of whom about three are Indians. Estalla, a Spanish writer, estimates the whole number of inhabitants at three millions and a half only, but mentions at the same time his inability to obtain exact statements.

NEW GRENADA, TIERRA FIRMA, and CARACCAS; bounded on the north by the Caribbean sea, and in the isthmus of Darien by Costarica in Mexico, on the west by the Pacific ocean, on the south by Peru at the rivers Tumbez, Maranon, and Amazon, and on the east by Brazil; Dutch English and French Guyanas, and the Atlantic ocean. Those countries are now formed into an independent republic under the name of COLUMBIA, the capital of which is Santa Fe de Bogota, and the whole of their population was estimated, in the beginning of this century, at about one million nine hundred thousand souls: but since that time, wars have not ceased to desolate that part of South America. A late official statement, however, carries the number of inhabitants in Columbia to two millions six hundred and fifty thousand; and in Humboldt's, it is also rated at about this amount.

PERU; bounded on the north by the province of Jaen de Bracamoros in Columbia, on the west by the Pacific ocean, on the south by the desert of Atacama and Chile, and on the east by Brazil and the independent states of the great basin of La Plata. The new capital of Peru is Lima, and the old was Cusco or Couzco. A considerable part of this country is now independent, and under a protectorship; another portion is still occupied by Spanish royal troops, which have retired into upper Peru, a circumstance which will probably contribute still more to thin and empoverish its population. The number of inhabitants, of all origins, has been rated at one million three hundred thousand, of whom seven hundred thousand are Indians; but it is probably not so considerable now. The Indian population, at the time of the conquest, was estimated at eight millions, and if correctly, notwithstanding the supplies brought from the interior and from Africa by slave traders, the Indians sent from other parts to work in the mines, and the considerable influx of Spaniards, Peru only contains now about one seventh part of its former population.

CHILE; bounded on the north by the desert of Atacama and Peru, on the west by the Pacific ocean, on the south by the river Biobio and Arauco, and on the east by the states of the basin of La Plata at the eastern foot of the Andes. It comprises also Valdivia with its small territory, the islands of Juan Fernandez, and the

archipelago of Chiloe, not yet separated from Spain. The capital of Chile is Santiago, sometimes called Chile only, its Indian name. This country has been for some years past formed into an independent republic, which is governed by a supreme Director and a senate of five persons. Its population may be estimated at two hundred and fifty or three hundred thousand souls, chiefly creoles and mestizos.

La Plata; a vast basin bounded on the north by Brazil and the high lands which divide their waters between the Amazon and the Parana, on the west by the higher part of the chain of the Andes, on the south by a line from the river Tunuyan to cape Lobos, and on the east by the Atlantic ocean and Brazil; at the entrance of which stands Buenos-ayres, and which will farther be described in the next chapter. It has, for several years past, consisted of a considerable number of independent states. Its name is not derived alone from that given by the Spaniards to the river Parana, but also from the city of Chuquisaca, which was erected into a metropolitan see, and received the new appellation of La Plata, in consequence of its situation near the districts of the most abundant silver mines in the Andes.

The inhabitants of the unconquered lands of Arauco, of Magellan, of Patagonia, and of the southern pampas, are supposed to be very few. I heard in Chile from good authority, and from persons to whom military operations had given an opportunity of knowing much concerning Arauco, that its population had been thinned in an extraordinary degree, principally by the small pox, the measles, and the use of ardent spirits, which still were the cause of considerable destruction.

The islands of Cuba and Porto-rico, in the Caribbean sea, with a population of six hundred thousand souls, remain in the possession of Spain.

With the exception of Brazil, where a million or fifteen hundred thousand negro slaves and about one million of Indians, form the principal part of a population estimated at near four millions of souls; of English French and Dutch Guyanas, where, out of about a hundred and sixty thousand inhabitants, one hundred and forty thousand are African slaves; of all the West Indian islands, where they form the principal part of a population of about two millions of souls; and of the

southern United States, the other countries of America, which have been described above, contain now but few blacks and still fewer slaves; a name and a class of people which, from the measures lately adopted, will probably soon cease to be used and seen in them. The number of native Spaniards who inhabit them is now very small, and daily becoming less. The numerous monastic establishments and their large possessions are still partly held by Europeans, but the monks and nuns in them are much diminished. Next to these, in wealth or influence, come the creoles, who are the native descendants of Spanish parents; those of Spaniards and Mestizos, called Cholos; after them the Mestizos, born of a Spaniard and an Indian woman, the quarterons of a Spaniard and mulatto woman, the mulattos of a Spaniard and negro woman, with other subdistinctions. The Roman catholic religion prevails every where within the range of the several jurisdictions of those countries; and such protestant settlers as may be established in them, have no other place of worship than ships of war, which seldom lie in convenient situations for it. But at Rio de Janeiro, the British residents have a chapel, and a church is now building for them. It should be observed that, although, conformably with some late statements, I have rated the population of Brazil at near four millions of souls, yet, in Sir George Staunton's Embassy to China, it is estimated at two only: a circumstance which tends to shew the uncertainty which may still exist, concerning the real number of inhabitants, in countries so vast and with so little intercourse. The whole of the population of America with its islands, not including the Russian territories and the independent Indians, which would make but a small addition to it, is found in Humboldt's to have amounted, in the beginning of this century, to twenty five millions six hundred and fifty thousand souls; a number which, in that hemisphere, perhaps as large as our own, only exceeds by eleven millions that of the inhabitants of Great Britain, and forms about the twenty third part of human beings now moving in its sister world.

In offering the following statement I need not observe, in regard to the population of Asia, of Africa, and of some new continents or islands whose extent might claim a new incorporation, that its amount can only be conjectured.

New Spain and the Capitania general of Guatimala, now the Empire of Mexico	7,100,000
New Grenada and the Capit^{a} gen^{l} of Caraccas, now the Republic of Columbia	2,650,000
Peru	1,300,000
Chile	300,000
Arauco, Southern pampas, Patagonia, Magellania	60,000
Viceroyalty of Buenos-ayres, now the independent States in the basin of La Plata	1,100,000
Brazil	3,800,000
British, French, and Dutch Guyanas	160,000
West Indian Islands	2,000,000
United States	6,800,000
British Canada	450,000
AMERICA	25,720,000
EUROPE	182,000,000
AFRICA	70,000,000
ASIA, with newly discovered continents or islands in that parallel	340,000,000
Total of the population of the world, in the beginning of the nineteenth century	617,720,000

It has been estimated that about 64,000 human beings are daily ushered into it, and that nearly the same number is making room for them by leaving it.

The cordillera of the Andes and their high table lands, in Mexico, in Bogota, and in Peru, at the time of the conquest, held the nations of this hemisphere with which civilization had either most advanced or least retrograded, the Mexicans, the Muyscas, and the Peruvians. The Aztecas, from Aztlan, a country northwest of California, towards the end of the thirteenth century, invaded the elevated plains of Anahuac, which, from the beginning of the seventh, had been occupied during three or four hundred years by the Toltecas, also from the north, who had been driven out of them by famine, and by wars with some other tribes. The Toltecas and the Aztecas, both supposed to have come from Asia, brought with them the knowledge of some arts and sciences; but, which of these two tribes possessed them in a higher degree, appears uncertain. That of the Aztecas, after many sufferings from want and from slavery, received their freedom as a reward for the valour which they had displayed in fighting for their masters, and in the year 1325, built the town of Mexico, on a spot which they called Tenochtitlan. The origin of these people is

still involved in doubt; that of the Muyscas of Bogota, of the Puruays and other tribes of Quito, of the Peruvians, Chilenos, or Araucanos, in darkness.

Montezuma, the King of Mexico, and Atahualpa, Inca or Sovereign of Peru and Quito, a descendant of the revered Manco Capac and Mama Oello his wife, were surveying from the cordillera of the Andes the vast countries below them—the former to extend his conquests with the destructive sword of despotism, and with priests armed with the knife of most inhuman religious rites—the latter to increase the number of his subjects chiefly with the means of a milder religion, of peaceful arts, and of roads of very extraordinary extent and labour; when, in the beginning of the sixteenth century, that sun which they worshipped, rose with inauspicious rays, discovered to their view the ships of Cortez in the Atlantic, those of Pizarro in the Pacific, and set to them and their subjects for ever.

We learn from Humboldt that, although traditions do not indicate any direct connections between the Indian nations of North and South America, yet their history, their religious and political revolutions from which began their civilization, offer striking analogies, and that the Mexicans and Peruvians are as distant from the Greeks and Romans, as they approach near to the Etruscans, the Egyptians, the Thibetians, and people of the Mongul race, by their edifices, their religious institutions, their division of time, their cycles of regeneration, and their mystic ideas: that by those, by their cosmogonies and hieroglyphics, rather than by an analogy of language, are intimate communications between the inhabitants of Asia and those of America strongly manifested: an opinion which is also held by other distinguished writers. The Mexicans, notwithstanding some progress in civilization, were in other features barbarians of the most savage kind: they immolated all their prisoners at the shrine of their divinities, and, according to some statements, feasted on their flesh: many of their own people also shared the same fate; and when the very small beginning of this tribe, its poverty and vicissitudes, are considered, how they could exhibit two hundred years afterwards innumerable towns, fields in high cultivation, and an immense population over an extensive empire, is not easily

conceived; but the traces of all this, with the exception of a few large buildings, are now chiefly found in the early accounts of Cortez and of his followers. The Peruvians have left behind them many traces of more skilful agriculture, architecture, and workmanship, by their contrivances for irrigation, the power and perfection with which they hewed, raised, and joined, the large stones with which their fortresses, temples, and palaces, were built; their extraordinary roads, their bridges, utensils, and ornaments. They had not, like the Mexicans, symbolical paintings by which to record historical events, and they only used for that purpose a knotty string, of different colours, called *quippus*, which was kept by their priests. Cacao nuts was the money of the Mexicans, sometimes made up in bags for the conveniency of large purchases: but with the Peruvians, money was not required. The spade or the mattock only was used for agriculture in America: the plough might have been known to those nations, but they had not beasts fit for its operation.

As the inhabitants of this continent receded from the eastern declivity of the Andes, they appear to have been in a more and more rude state. Some parts of it, yet unknown, have however been supposed to be the abode of nations, still more advanced in civilization than the Peruvians; but this appears only a mere hypothesis. Towards the shores of the Atlantic, the Indians were, with few exceptions, of the wildest description. Of the multitudes of tribes which occupied the whole space from the Andes, many were anthropophagi; and among those who had carried cannibalism to the greatest refinement, were the Caribs or Caribbees, a very powerful and ferocious race, who are supposed to have originally come from the eastern lands of North America, and who inhabited the islands of the Caribbean Sea, from whence they pushed their conquests and incursions far into the interior of South America, for trade and particularly for slaves, who, as well as the children born of them, were eaten by the Caribs, after having been carefully fattened, as we do beasts in Europe. They preyed and subsisted on human food almost exclusively, disdaining all other when they could do without it.

Among the most numerous tribes of this southern continent were the Guaranis

of Paraguay, the Tupis of Brazil, and the Omaguas below the Andes in the basin of the Amazon, the latter of which are mentioned as having possessed all the numerous islands in that immense river, for the space of two hundred leagues, and are still supposed to inhabit them. But the banks and islands of the Amazon, after having been the subject of many fabulous narratives, seem now plunged in great obscurity. The warlike women, from the reported existence of whom it received its name, have not been found yet: the Indians were often sufficiently intelligent to discover the real purposes of the invaders, and to rid themselves of them by sending them far away, on a wrong scent, after towns and mountains of gold, or countries of women without husbands, who only permitted their male neighbours to visit them at particular periods, destroyed all the progeny which was not of their own sex, and abounded in wealth. It seems however probable, that some fierce tribes, among whom women joined their husbands in battle, were the cause of the report, which was heard in many places.

The Guaranis, Tupis, and Omaguas, notwithstanding their considerable distance, spoke nearly the same language, the parent of which was the Guarani, the most copious and artificial of those used by other tribes, and that which most indicated a polished origin: but the Tupi tongue had spread over a wider surface than any other; it was heard along the whole coast of Brazil, and far in the interior. Between these tribes were great numbers of others, whose languages differed with each of them. A general tendency of idioms, however, has been observed in America. Customs prevailed with many Indians, likely to accelerate the natural corruption of the richest language, when passing from a polished to a rude state, and under the controul and caprice of the ignorant: with some, the death of a man would cause new names to be given to many things in his possession and used by him; and, if a chief, the change of names would extend much farther: with others, single women would speak a dialect distinct from the rest, till they were married. A striking feature, which presents itself to a traveller in this continent, and by looking at the map of it, is that of the words *agua, igua, gua* or *guay,* which either precede or

follow Indian denominations, by which tribes or their settlements appear described as lying near the water: in Chile, along the Andes, in the neighbourhood of Santiago, we find *Aconcagua, Peildagua, Rancagua, Bancagua* or *Bacangua, Colcagua,* to be the original names of villages or towns formerly Indian, situated on small rivers or torrents flowing from the mountains. I name these from accidental recollection only; but many more instances are without doubt to be found in that country, and we observe this feature as far as the northern settlements in America.

Divisions and descriptions of territories appear to have only in few instances taken place, among the former possessors of this continent. The Mexicans were the nation with whom they more particularly and clearly existed, and the termination *lan* offers itself with the divisions of the greatest part of their lands. With them the distinctions of rank were fully established and strongly marked: some appeared to correspond with the titles by which they are often distinguished in Europe. Estates were held and cultivated under different tenures, but more commonly under one somewhat similar to the feudal system. The bulk of the people were serfs or slaves to the higher orders, and were transferred to them with the land. In the towns were considerable numbers of tradesmen and artizans. When Cortez appeared, eight of their kings had already reigned, and Montezuma was the ninth. In Peru, the Incas or Sovereigns, to whom all belonged, allowed portions of land to be occupied and cultivated by the same individuals during one year only, after which time they passed to others: one part of the produce belonged to the sun or its temples, for their support and that of the priests, another portion to the Inca, and the rest was shared by the community. The Incas were both divinities and temporal sovereigns to their subjects, and it is probably owing to that circumstance, that every work or remarkable thing was called the Inca's. In one of the passes over the Andes of Chile are still found, an Inca's bridge, bath, lake, and road. Manco Capac is supposed to have reigned in the twelfth or thirteenth century, and Atahualpa to have been the fifteenth king of that dynasty, when Pizarro conquered Peru.

The kings or chiefs of all other tribes are generally denominated *Caciques;*

but with several they were otherwise and variously called: their authority was greater in war than in peace, but not very considerable at any time. Of many of those tribes which inhabited or still inhabit South America below the Andes, little or nothing is known; and, of all those whose settlements have been visited, occupied, or destroyed, some ate their prisoners, others did not, some were very rude and warlike, others mild, pacific, and slightly polished; most of them robust and well made, and some few small and weak: the least in stature appear to have been thin tribes which dwelt near the inundated lands of the Chiquitos, or in swampy spots below the Andes, and the Guayacas whose height was five feet or a little less: the tallest were some Patagonians, about six feet six or eight inches high, but many among the latter were of a common stature. The general complexion of all was a light brown colour, with a thick glossy straight black hair, a feature which also belongs to the present mixed races; some were darker than others, and some of a coppery tint. Among the tribes which dwelt near the Amazon, many were found well clothed, and provided with the necessaries of life, by means of agriculture and manufacture, either advancing towards the partial civilization of the Peruvians, or not having far retrograded from it. But a great part of the American Indians were in a nearly naked state, and lived chiefly by the chace. A very general feature in all the male sex was an almost beardless face, which, from the prevailing custom of plucking out the beard as it grew, might at last have become hereditary; but enough still appeared, to give them some employment in getting rid of it. Another custom, observed among some of the most numerous tribes, was that of flattening the head of their children, by compressing it between boards, so as to give it the appearance of a moon, or to alter its natural into other fantastic shapes: some stretched their ears down to their shoulders with large shells, bones of fish, or other substances hanging from them; others would also pass various ornaments of considerable sizes through their noses and lips: their heads were thus very much disfigured, but their bodies exhibited fine proportions, and all children born with any appearance of deformity were, as with the Spartans, destroyed at their birth. The men painted

their bodies of various colours, particularly of red, and in wars and festivals more than at any other time: by means of a puncture and permanent die they exhibited various patterns on their skin, and the hair of their head was often shaved or plucked out to a tuft left on the crown of it. These embellishments, with skins and feathers, constituted the toilet of the Indians: these were their fashions; and when this word speaks, taste must often be silent, in any country, or at any time down to the present day. The office of hair or body dresser among them, was generally performed by aged women.

With most tribes polygamy was prevalent, and it is stated that with a few, women were allowed to have several husbands. Wives and children were usually very kindly treated by the male sex; but the life of the women, particularly among the most unsettled of them, was excessively laborious, as not only the care and management of their families and household, of their food and drink, and of the manufacture of some garments, devolved on them, but also the carriage and conveyance of all the implements used by them, and of their children. When several of them became equestrian, the female sex was in some degree relieved, and placed their young, with their tent equipage and chattels on their horses, in panniers by their sides. This custom, that of polygamy, which operated as a strong inducement for the preservation of bodily endowments, the labour and difficulties of a roving life, of providing for numerous families in some regions, of sheltering them from enemies, wild beasts, and reptiles in others, and lastly the additional chance of slavery occasioned by the arrival and spreading conquests of Europeans, may be held out as the origin of the custom, found generally prevailing, and which became still more so after that period, of destroying their progeny, with the exception of one or at most two children, or of not giving birth to any at all. This was a barbarous feature: but, an Indian might also find just cause for the reproach of much inhumane injustice, in the institutions and customs of several of the most polished nations, and think it an act much less criminal to destroy a child at its birth or before it, than to give a long unhappy life to many, under disadvantages so positive

as not to be removed, by which such children are often wilfully and cruelly thrown into a miserable or criminal course of life, and the community unnecessarily burthened and injured. The intention here is not to palliate the crime of such destruction, but to have as true and comparative a view as possible of the state of mankind; divested of all the haze thrown over it, by long custom, prejudices, and self conceit, after which the epithets of barbarous and brutish savages may often be softened or dismissed, and an impression remain in the mind, that by raising the large portion of mankind to which they are so generally extended, and lowering ourselves, in our estimation of all, more justice will be done.

Another remarkable feature was the treatment of such of the prisoners as the Indians chose to preserve for performing the office of slaves, which was usually so kind, that they became strongly attached to their masters, and were looked upon as members of their families. A part of the education of male children was, to accustom them to bear acute suffering, by often inflicting it on their bodies from the time of their birth, so that they were enabled, not only to evince extraordinary fortitude, whilst under a trial of the most severe wounds and treatment, but were also in some degree deprived of the feeling of pain. There prevailed among the female sex a strong attachment to their husbands; and a sense of modesty has often been witnessed among them, which indicates that it formed part of their education, founded on their own notions of the practice of that virtue. The expression of the Indian countenance was that of melancholy, and of a humane disposition. Among very unseemly and repulsive customs, every where found in the world by seeking well for them, many good qualities, the practice of many virtues, have been observed in that unfortunate race, by which the interest excited in its fate is rendered the stronger, the more it is considered.

I have mentioned those features in the past tense, from the conviction which gradually grows out of the history of this continent since its conquest, that it is more appropriate than the present. Hordes of Indians hunting other hordes for slaves and for food; Europeans hunting them also or kidnapping them, for labour

and slavery, during three hundred years; the trade carried on for the latter object multiplying the wars amongst them, and arming one against the other by turns; the ravages of new diseases, and the irresistible temptation of ardent spirits; all this appears sufficient for at least a strong presumption, that many of their tribes are now entirely extinct, and such as are still existing, greatly thinned. Of some extensive and yet unexplored tracts, the numbers and state of the inhabitants are unknown.

The aborigines of America have often been described as deficient in mental faculties, and so entirely deprived of some feelings, as to indicate a peculiar conformation of organs. This has also been supposed of the African negroes. The subject must be left to those, who, by their knowledge and researches, have been able to compare the structure of the organs with which all mental feelings and faculties are connected; and the effects of different modes of life; of that education which begins at the mother's breast, and of the various states of society. Some people may lean to the doctrine of Lavater; some to that of Gall and Spurzheim; others may admit a little of both, and of an action from the passions upon the organs, with a reaction from the latter on the former. But whatever may be the capacity of their minds, certain it is, that their black and brown faces have not operated as a favourable introduction to their whiter brethren. The inhabitants whom I have had an opportunity of observing, chiefly consisted of creoles, and of mixed races. These have been represented as very passionate, but I cannot think their passions near so strong as those of northern Europeans. They are excessively cruel to animals; but it is from the absence of feelings, rather than from the workings of passions, and the indulgence of giving vent to their inward fire: they will goad, spur, and lash a beast as long as it can go, and, if it should become disabled, they will let it die slowly on the road, but I never saw them lose their temper with it. Much obstinacy would be required to provoke them to language or acts denoting a passionate state of mind, and this I do not recollect ever witnessing. I have passed much time in the cottages of Chile, but there never, absolutely never,

did I see their inhabitants angry with one another or with any beast. Their children and their numerous dogs would stand round the fireplace, in the way of the work going on for dinner or supper, try to steal what they could, and wait half a dozen commands, before they would move somewhere else or fetch any thing, but hardly ever give rise to feelings even of impatience: nor did I ever see parents strike their children, or hear them speak to them otherwise than kindly. Strong passions would excite bursts of affection as well as of anger; but a caress bestowed on child, horse, or dog, is what I never saw in South America. They appear affectionate among themselves, but are, I believe, in some degree passively and often perhaps negatively so. On such occasions when a man of the pampas would look stern, one of Chile would laugh; and, particularly with the latter, temper seems to be very seldom ruffled, or moved in any way.

I do not remember to have heard an oath on any occasion whatever: when a beast does not as they wish, they sometimes will call it by some low name: and whatever may be the real state of morals, a most important feature often disposed of by a few lines, without the very long residence and the impartial relative view which it requires, in order to judge well of it, there is even amongst the most ignorant and poorest classes, a decorum of manners, and, as far as I can decide, a chasteness of language, which are very pleasing. Many Chilenos, although not of pure Indian blood, of which very little remains in their country, appear to correspond with a tribe called Chinos, who inhabit some part of the pampas, and, being more docile and better disposed than others, are preferably employed at Buenos-ayres and on the estates near it: they are so called from their resemblance to Chinese, a feature of countenance and stature, likewise very striking in many of the inhabitants of Chile, but improved upon there; at least according to our notions of beauty. The following occurrences may serve to illustrate the absence of feelings to which I have alluded, and of which I have seen numerous instances. Some Chilenos were on the point of riding away from a feast, and two genteel ladies of respectability were standing before their house near them, looking at the scene: one of these men, who appeared

old and nearly drunk, was thrown from his horse, and fell on stones as if he had been a lump of lead, with a noise similar to a box breaking by its fall. An instantaneous mirth and loud laugh were the consequence with the ladies near me, who did not move a step, or make any enquiries about the man: his companions, laughing heartily also, got off their horses, sat the old man up again on his own, without first looking if he was hurt or not, for he could not speak; rode off with him, one on each side, holding him up and taking good care of him, but at the same time highly entertained by the occurrence. A miner was one day brought to Guasco so badly wounded, after fighting with the knife, with so many deep stabs, and such loss of blood, that his case was supposed quite desperate by a foreign medical gentleman of that town: but one of the butchers, the men who on such occasions perform the office of surgeons, was sent for, laughed, and said that the man was not made of white flesh, meaning Europeans, that he would cure him as mules were cured, and enable him again to go to his work in a few days, which was the case after much cutting and plaistering. They are very fond of gambling at cards, but this I only saw once or twice: they cheat very expertly, and most deliberately plunge their knives into one another's body for foul play, when it is discovered.

The ingenuity and intelligence of the American Indians have been displayed in many branches of manufactures, both before and after the conquest: they smelted and extracted gold, silver, copper, and other metals; wrought them into tools, utensils, and ornaments, of fine and tasty workmanship: the elegance and pleasing fitness of proportions and patterns of many articles, still made in South America by them, indicate the gift of considerable natural abilities. Fine cotton, woollen, and hair stuffs, were there wrought, printed or died with lively and fast colours; but these are now in a great degree superseded by the cheapness and variety of European manufactures. Hats and other articles of plaited grasses and beautiful texture, morocco leather died of different colours, richly ornamented saddles and bridles, fine mantles and carpets, and in short most articles of necessity and luxury, were and are still made in Peru and elsewhere. Vessels of all descriptions, baskets, pans,

and other utensils, of silver and copper, are formed with the hammer only; and of the latter kind a considerable quantity is made in Chile, for the use of the inhabitants, and for exportation. Some tribes in the basin of the Amazon, with tools made of stones, bones, and hard woods, were skilful carvers. A branch of manufacture, known and practised by almost all the Indians of America, was pottery, and many excelled in it: the present Chilenos are good potters for common ware; they introduce a considerable quantity of earth or sand, containing abundance of yellow mica; and jars, holding seventy gallons or more, are made by them of great thinness, lightness, and strength, which sound as if they were of metal. In all works of arts and manufactures, if the ancient Mexicans surpassed the Peruvians, in the number of their tradesmen and artisans, and in the various distributions of labour, they were excelled by them in taste or elegance, and in fitness of proportions, in all which the Mexicans appear to have been awkward and unskilful. The plants most extensively cultivated for food in America, were maize, mandioc, bananas, and kidney beans; and with the former and other productions, among which was the fruit of the algarob, they made fermented and inebriating liquors, but much less pernicious than the powerful spirits which have since been introduced among them. Chocolate is supposed to have derived its origin and name in Europe from the Mexicans, who called it chocolatl.

The religious opinions of the Indians of America were almost as various as their nations or tribes. The Mexicans had an extensive mythology with a supreme deity, and besides many gods and goddesses, they worshipped the sun and the moon, but particularly an evil spirit and a god of war: the forms in which their religion was clothed, were not only austere and cruel, but hideous. With the Peruvians, the sun was the chief object of adoration as the source of life: to it they offered some of the fruits of their lands, and they sacrificed some beasts on its altars: their religion was less cruel and repulsive. But with them, as with the former, considerable numbers of attendants and slaves were often sacrificed on the grave of their masters, in order that they should continue to serve them in their new abode. Both had temples and

priests, and it is recorded that the Mexicans immolated seventy thousand prisoners, for the consecration of one of their sanctuaries. With all other tribes, religion assumed ruder but rather less sanguinary forms: some acknowledged one supreme God, others two or three, with various mixtures of idolatry: many worshipped a good or an evil spirit, or both, personified in different ways: they had neither priests nor temples, and the performance of religious rites was usually left to the care of women of great age, whom, as well as some sorcerers and magicians, the Jesuits found to be considerable obstacles to their progress. A class of persons, also supposed by them to hold communications with good and evil spirits, were their physicians, whose office was exposed to much risk; for, if a patient of any consequence died, they were often put to death for it. The method in most common practice, for the cures of wounds and sores, was that of sucking them.

A general feature, without which no human tribe or society has yet been found, is a belief in the immortality of the soul. This, however rudely carved in many, is an impression every where exhibited, and to provide for physical wants or spiritual happiness in another life, each according to his own religious ideas, appears a care, with the least as with the most civilized man.

We may suppose that the most common instrument, for the administration of justice with the Indians, was the power of the strongest, or that the standard for it was such, as what prevailed before christianism became well understood and its influence felt, an eye for an eye, and a tooth for a tooth. The Peruvians, from the nature of their government, the community of goods, the annual mutation of their possessions, the scattered abodes of their tribes, and the divine attributes and power acknowledged in the Inca their sovereign, could not be exposed to many private broils; but all crimes with them were considered as offences to that divinity, and therefore punished with death. Much of the Mexican power was vested in the higher order of nobility as well as in the king; after them came other classes of nobles; and, as real and moveable properties were with the Mexicans well defined and established, held under different tenures, and in most cases hereditary, it is

probable, from their institutions and their natural disposition, that they must often have had recourse to tribunals or to arms, for the settlement of their differences. In other parts of America, many customs prevailed for the atonement of injuries, more or less according to the standard already mentioned: the caciques, who were first captains in war, often performed the office of judges in time of peace, and a spirit of equity with many tribes, has often been noticed amongst their good qualities.

The Jesuits, who spread themselves nearly all over America, for the purpose of converting its inhabitants to the christian religion, first arrived in Paraguay in the year 1556. They were of all nations. Spanish, Portuguese, German, Irish, French, Italian, and other monks of that order, soon flocked to both the eastern and western shores of this hemisphere, and once a single ship brought forty of them to Buenos-ayres. This was indeed a vast field for them, and they explored it. Many had the most arduous labours to perform, and very severe hardships to undergo, in penetrating into unknown and inhospitable regions, inhabited by wild tribes, often hostile to strangers: to these they submitted, and some sank under the effect of their zeal, overcome by the difficulties of their journies and enterprises, by the climate, the attacks of Indians, or of wild beasts. With the exception of the still unexplored tracts, they penetrated into the principal parts and settlements of the basins of the Oronoko, of the Amazon, and of La Plata; along both sides the Andes and the western coast, from Arauco to California, and through a great portion of Brazil. In nearly all the Indian settlements which could be discovered, missions were by degrees established, in which not only the work of baptism and conversion, but also the trade for slaves, were at the same time favoured and performed; the latter often with reluctance and opposition on the part of the fathers, sometimes with their assistance, under the veil of less opprobrious names. Some used their influence well, others abused it.

During one hundred and fifty years, the Jesuits had brought as many Indians as they could into their missions and estates; and the conquerors, all those of whom they could lay hold, far and near, into the mines and their private service as slaves. After much animosity, occasioned by these conflicting wants, the latter complained, that

owing to the Jesuits, Indians could no longer be found in sufficient number for the required labours; and those fathers, on the other hand, sent remonstrances to Spain on the effect of slavery and cruel treatment, observing that their missions were deserted or deserting, because the Indians saw, that, whether christians or not, they were destined for slavery. The great destruction among the American race tells this more forcibly, than all those who have written it. We find the following observation in the account given of Paraguine Indians by Father Martin Dobrizhoffer, a late Jesuit of Paraguay, in Vol. I. p. 165. "The Indians, wearied with miseries, returned "whenever they could to the ancient recesses of their forests. The Lules, who had "formerly been baptized by St. Francisco Solano, and cruelly enslaved by the inha- "bitants of the city Estero, fled to the woods, which they had formerly inhabited." It cannot be said that the original Indians have gradually passed into their mixed races and been replaced by them; for after the lapse of three centuries, the proportion of the latter is at present perhaps only one tenth part, to the number of the former at the conquest; if, at least, we are to admit the statements given of the Indian population of America at that period: nor can there be much weight in the observation that the Indians were continually at war and destroying one another: to die at the birth or in war, and to die a slave after hard labour, are not the same thing; and America was conquered by those who claim a preeminence in the practice of christianism, the chief duties of which are peace, humanity, and charity; to treat and love our neighbour as ourselves.

Such had been the drain of those unfortunate people, in the Spanish and Portuguese possessions, and so loud were the groans of their survivors, that these were at last heard in Europe, and in the beginning of the eighteenth century, regulations intentionally less inhumane, but ultimately of no avail, were transmitted to America. The privileges of the *encomiendas* and *repartimientos* were modified, in order that the sufferings of the Indians attached to them might be lessened. These names had been applied to the portions of lands granted to the conquerors, of which the various orders of ecclesiastics held the largest and finest. The Pope had granted America

to Spain and Portugal with all its human stock, and in the same manner had it been parcelled out to their subjects. The instructions sent, to the end that the Indians might have more food and less labour, were evaded or laid aside: magistrates were then appointed for the same purpose, and this also failed of success. It had been ordered that when the Indians on the estates readily submitted to labour for their masters, these should use them well, and instruct them in the christian religion, allow them sufficient pay or food, and require only a certain share of labour; they were then called *mitayos*, or taskmen: those who resisted and were overpowered, might be used as their masters pleased; in which case they were denominated *yanaconas*, an appellation given in Peru to a particular race of helots or slaves. But the ground of resistance was easily created or pretended, and both the mines and the estates continued to be supplied with yanaconas. The mitayos had, by the last regulations, another duty to perform besides labour to their lords and monks, and besides a capitation tax of a dollar a head; they were obliged to go and work in the mines once every third and a half year, whatever might be the distance over which they had to travel, which frequently exceeded many hundred miles: they exchanged one forced labour for another, with the additional hardship of leaving their homes and their families for a service, the nature and distance of which often made it their last, and relieved them from farther miseries; as what the work in the mines did not effect, was done by diseases and the use of spirits.

The Jesuits, however, obtained an order by which the Spaniards were not only prohibited from interfering with their establishments and missions, but even from entering their territories without the permission of the fathers; and, from the beginning to the middle of the eighteenth century, they were able greatly to increase the number of the missions and their population, but not without a considerable increase also, of animosity and hostility on the part of the Spaniards and of the slave traders. The means employed by those monks, as a first introduction to the friendship and confidence of the Indians, were the gifts of various tools and utensils, and of articles of dress, with all which they were always well provided; they next baptized them,

and endeavoured to prevail on them to live by agriculture rather than the chace; to settle in the missions and submit to their rules; to abandon cannibalism, poligamy, wars, and idolatry; to rear all their progeny, and to become faithful christians. Each Indian had a task allotted to him, and the produce of his agriculture and manufacture was lodged in a store, which was called common, but was in fact the store of the fathers: out of this stock the Indians were fed and clothed; better or worse according to their labour and diligence: a trade was carried on with what was not necessary for their support, by means of which the requisite European commodities were obtained.

The success of the Jesuits in Paraguay was considerable, and their principal missions were those called the Reductions, on the banks of the Uruguay, with some on the Paraguay and Parana rivers, the chief of which was Asumpcion. In that part of South America they found the Guaranis, one of the most numerous tribes, and whose language or its derivations, we have already seen, were spoken or understood over the greatest part of it. The Guaranis of the missions became such good and faithful subjects to Spain, that they bravely fought for her, against the Portuguese of Brazil and the hostile Indian tribes, whenever required: they very readily learned what the Jesuits taught them, and possessed qualities which held out the prospect of much farther progress. The Guarani tongue was adopted by the monks, as had been done in Peru, where the Quichan, a common language ordered by the Incas to be learned and spoken by all their various and distant tribes, had likewise been adopted in many districts by the fathers; so that to this day, dialects of mixed origins, in which the Spanish is blended with the Guarani and the Quichan, have in many settlements replaced their parent tongues. The numbers of converted Guaranis have been variously stated, from fifty to above a hundred thousand, and that of the missions of Chiquitos to above twenty thousand: but so anxious were the Jesuits to send the most flattering accounts of the results of their labours, that their exaggerations became proverbial; and little reliance can be placed on the description of their numerous towns, many of which were nothing more than a few huts, or on

their inhabitants, numbers of whom had no sooner received the customary gifts, and been baptized and registered, than they went back to the forests.

As the success and influence of the Jesuits increased, so did envy and animosity towards them; and an event happened which shews, that the mitigation which had been intended by the sovereigns of Spain and Portugal was not, with their ministers, much greater in Europe than in America. In the year 1750, the most considerable Guarani reductions on the Uruguay were ceded to the Portuguese, their bitterest enemies, and after many vain intercessions from the Jesuits, and some useless resistance from the Guaranis, thirty thousand of them were compelled to abandon seven of their best settlements and lands, and to seek elsewhere new dwellings and means of subsistence. This harsh measure gave a blow to christianism, from the effect of which among the Indians it did not recover, and soon afterwards it almost entirely sank under another. Envy and malignant animosity, many vague and unfounded suspicions, and some well grounded accusations, having continued to assail the Jesuits on all sides, and to undermine their reputation, gave at last in Europe an alarming appearance to their growing influence, and caused their downfall. In or about the year 1757, they were expelled from Brazil; in 1767, from all Spanish America, and soon afterwards was their order entirely suppressed. They were not so much recalled, as ignominiously and cruelly driven out, and many shipped off, much in the same manner as African slaves were transferred from their native land to be converted from human beings to beasts. Their fate was rather aggravated than softened by other religious orders, anxious to take possession of the comfort and power of wealthy establishments and estates, no longer liable to the same dangers and hardships as had attended their founders. The innocent suffered with the guilty, and men who had been authorized to represent themselves to the Indians as sanctified and almost supernatural, the fathers of christianism, were suddenly, in their presence, hurled down from the pulpit, and treated as the most criminal felons.

After that event, the situation of the Indians became more extensively worse:

the regulations which had been intended to alleviate their sufferings had the contrary effect, and rendered oppression more systematic: the missions, as well as the forests, furnished what more slaves they could afford for the mines and the estates, and in the year 1779, the Indians of Peru and La Plata attempted to redress their wrongs themselves, by an extensive insurrection, which caused the ruin of several thriving towns engaged in mining, below the eastern side of the Andes between Potosi and Cuzco, the destruction of their most wealthy inhabitants, and threatened an overthrow of the Spanish power in those districts: but it was quelled; and although from the decay of the Indian population and of the mines, from feelings a little more just and humane, and from the effect of the late revolutions, the situation of the Indians has been meliorated, slavery and the mita service abolished, yet they continue in the lowest state, because the spirit of emulation and improvement cannot be manifested, where the benefits to which it is expected to lead are denied or taken away.

An interesting account of the present depopulation and decayed state of the missions of the Oronoko, and of some of those which are near the Amazon, has been given by B^{n} Humboldt; and there cannot exist a doubt, but if those of the basin of La Plata were now visited, they would not comparatively be found in a better situation.

When we make a due allowance for the effect of distance, in softening the forbidding features of many past deeds, as it does the sounds of harsh notes: when we wash off the false colouring with which history is often covered, or remove the gloss which adorns it, the mind waxes sad under the impressions conveyed by what remains. We feel pleased in raising ourselves much above uncivilized man, or in lowering him deeply below us. But, if we exclaim against the oddity of his fashions, he will laugh at the comic effect of our own, their incessant changes, the high and paramount importance attached to them, and the infantine exhibitions which the shifting of their various scenes places before him. If we tell him of his wars, he may shew us the records of ours; how many murders and miseries they have caused,

for one truly just and heroic deed; how often desired, not only for conquest and plunder, but even for some paltry gain attached to the state of warfare alone:—If of cannibalism; he may ask whether some among us do not believe that wars are necessary dispensations, in order that a seat may be had at the table spread out for the support of mankind:—If of our skill in politics; he will say that what he chiefly sees arising from them, are discord or discontent; social ties incessantly rent asunder, by mere differences of opinion in them:—If of our civil institutions; he may observe, that most only tend to shew the accumulation of evils, against which we learn how to guard, as Indians do shooting with arrows to prevent starvation, and to roost on trees to avoid wild beasts:—If of our morals; he may request that, like the devil on two sticks, we will unroof every dwelling, and shew him what passes there:—If of his idolatry; he will set before us the many strifes, midnight massacres, tortures, burnings, and persecutions, in the name of religion; animosities and discordance, in creeds and in modes of worship.—But if we tell him of good will and of justice towards all mankind; of humanity, and of charity for the relief of both the body and the mind; he will exclaim, that with such as follow this truly christian practice, he will live and die: for the natural disposition of uncivilized man soon teaches him how to find happiness in these, as much as the gradual improvement of rational faculties does the most civilized, that there is no other that can be lasting.

We may easily enjoy the gratification of seeing, how greatly the distance between the human creation and that of brutes may be widened: in the lowest hut can this be witnessed, and the mind gladdens at the sight; for, even there, after sufficient observation and an impartial judgment, must we allow a share, generally underrated, of intelligence, good sense, and seriousness of thought; natural feelings of justice, humanity, and benevolence, which, to grow and thrive, only require some culture and good examples. There we may rejoice at the conviction, that man in the rudest stage was born religious; formed to be a rational creature, and a Christian.

CHAPTER VII.

PROVINCES OF SOUTH AMERICA WHICH FORMERLY CONSTITUTED THE VICEROYALTY OF BUENOS-AYRES OR LA PLATA, AND WHICH NOW FORM INDEPENDENT STATES.

THE portion of South America which, after the conquest, made a part of the Viceroyalty of Peru, was afterwards, in the year 1778, detached from it, in order to constitute that of La Plata, and is now independent, may be represented as a vast elongated basin, opening at the southeast into the Atlantic Ocean, and partly formed on the east by the mountains of Brazil; on the north by the Campos Parecis or table lands of that country, the groups of the small mountains of Aguapehy and those of Santa Cruz, included in the transverse chain of Chiquito; on the west by the higher Andes, and on the south by the hills of Patagonia, from the extremity of which the opening extends to the river Plata. The northern and eastern waters of this basin empty themselves into the Atlantic by that river; the southern principally by the Colorado, the real course of which does not appear to be fully known: but most of the waters from the west and the Andes, comparatively of very small abundance, are lost in the ground or by evaporation, shortly after leaving the mountains from which they flow. The gradual rise, from the southeast to the foot of the higher mountains or lands which form this basin, seems to be so small, that were we to travel in it round their base, during the winter months or shortly afterwards, we should have to wade a considerable part of our way through inundated tracts and shallow lakes, as if we were going rather in a broad ditch, than over sloping regions with a sensible declivity towards the southeastern opening. The current of the great rivers Paraguay and Parana is so gentle,

that the fall of the principal part of their waters has been estimated at only one foot in a league, and this probably without any allowance for the power by which they may be propelled, as, according to other accounts, the declivity of the ground, between the 18th and 22d degrees of south latitude, is not one foot altogether.

Within this basin and its whole length, besides the many extensive bowls and broad longitudinal vallies caused by groups and chains of smaller mountains, are plains which appear as forming a distinct and uninterrupted great channel or vale, from north or northwest to south or southeast; the plains of Guanacos, those of Manso, and the plains of Buenos-ayres more frequently called by their Indian name, Pampas. But when the latter reach the southern extremity of the mountains of Cordova, in the latitude about 33° south, whether they are to be described as a continuation of the same broad channel of plains, formed here by only a ridge or step of higher lands, extending from those mountains far to the southward, or as taking a much wider range, and spreading out with nearly the same level as far as the Andes, has probably not been yet ascertained. The loss of the rivers Quarto and Quinto, after flowing some distance to the southeastward, would very much support the supposition that there is such a ridge of high lands, if their waters were not so inconsiderable. As to the Desaguadero, which is described in maps as the main branch of the river which afterwards takes the name of Colorado, it may be doubted, from the nature and small size of the former, if it can warrant such a description: but, at the little lake del Chorillo, or del Bebedero, about two hundred and twenty miles to the southeast of Mendoza, at the junction only, rather than confluent, of the Desaguadero with the Tunuyan, a larger river which comes out of the Andes a little below Mendoza, and after their many bifurcations and some partial retrograde course into the lake, it is very possible that what is not lost here of their waters, taking a southerly course, may reach the Colorado and the Atlantic. However this may be, the nature of the climate would lead to suppose, that the principal supplies of the latter river must proceed from more abundant and more southerly streams, than either the Desaguadero or the Tunuyan.

In the basin of the Amazon and in that of the Oronoko, which are chiefly covered with thick forests, no other roads exist than the course of their many and large navigable rivers, and almost no other settlements than what are on their banks. In this basin, although little intersected with thick forests, only partially covered with thin and small woods, and therefore nearly all open to communications and to trade, yet the population and intercourse are principally confined to three great lines of roads. The first to the north, from Buenos-ayres to Paraguay, along the rivers Parana and Paraguay: the second to the northwest, from the same city to Potosi and Peru, the great and formerly wealthy channel of inland trade and carriage with the mines of the Andes of Peru and with Lima, a distance of two thousand nine hundred and twenty five road miles; the third, from the Esquina de Medrana in the state of Cordova, where the road from Buenos-ayres to Mendoza and Chile leaves that of Peru and takes a westerly direction.

Near Buenos-ayres the population spreads out, and communications are more extended; but afterwards, it is on or near those roads where, in this vast basin, we find almost the whole of the inhabitants of European or mixed origins; which comparatively and with the exception of Buenos-ayres, Asumpcion, Potosi, and Mendoza, is very inconsiderable, and which of late has been lessened by wars, and by the gradual decrease of inland trade. Between these three principal lines of intercourse and population, or beyond them, are regions, some of which have hitherto been rendered uninhabitable by either too much or too little water, extensive inundations or continual droughts; others, which are pasture lands, entirely left to the range of cattle; and some tracts, which are settled or roved upon by Indians, whose numbers, probably never very great here, have been still more reduced by the causes stated in the foregoing chapter. Azara, a Spanish writer, thinks that all the Indians of the pampas could not assemble more than four hundred warriors, and that all the tribes continue rapidly to diminish. When we are told that five or ten thousand have approached Buenos-ayres for the plunder of cattle, I believe, from what I have heard on the road, that the number may be reduced to one or two hundred: but even

this, from the exposition of the country, is sufficient to drive very large herds of cattle away. The whole of the population of this basin, of whatever origin, is at present estimated at one million one hundred thousand souls, of which the state of Buenos-ayres is supposed to form the sixth or seventh part.

Its political division is, in most cases, founded on the different jurisdictions which already existed under the Viceroyalty of Buenos-ayres. A congress, from large provinces and small districts, now forming separate states, was held in Tucuman in the year 1816; some towns making up, by their population and their vicinity to the stores of silver, for the want of lands; and other states, by very extensive territories, for that of towns, or at least of inhabitants: for, the titles of Bishoprics, cities, and towns, so readily granted in South America, should not be suffered to convey an idea of population: high sounding descriptions and names have prevailed in an extraordinary degree in this continent, ever since its conquest: Baron Humboldt often found, during his travels in the northern parts of it, what is also observed on both this and the western sides of the Andes, the name of city, *ciudad*, bestowed on what can only boast of a few streets, and that of town, *villa*, on what only consists of some few huts and a corral. The act of independence was signed in San Miguel del Tucuman, on the 9th of July, 1816, and has been published in the following terms:—"We, the representatives of the United Provinces of Rio de la "Plata, assembled in a general congress, imploring the Supreme Being who presides "over the universe, calling on heaven, earth, and men, to witness the justice of our "cause, in the name, and by the authority, of the people we represent, solemnly "declare, that it is the unanimous will of the said provinces to break all the ties "which united them to the Kings of Spain, to be reinstated in all those rights of "which they were deprived, and thus to be raised to the rank of a free and inde-"pendent nation, capable henceforth of forming for itself such a government as "justice and circumstances imperiously demand. We are therefore empowered by "the United Provinces at large, and by each one separately, to declare and engage "that they will support this independence. Their lives, property, and fame, shall be

"their guarantee. Out of respect for the nations whom our fate may interest, and "feeling the necessity of declaring the weighty reasons which impel us thus to act, "we decree that a manifesto shall be published." Had this congress been held by Indians, the former owners of these lands, it would remind the traveller of the midnight meetings in the field of Grütli, on the craggy banks of the Four Cantons lake. When the spirit of christianity shall here become more united with the forms of it, the few who remain of those Indians may find some benefit in the change, and some atonement for the wrongs which they have suffered.

In giving the names and some description of these states, it is necessary to observe, that the limits of several, and the relative political situation or ties of all, appear to be yet very unsettled. A few of them, with Buenos-ayres at their head, have long and strenuously tried for a federal union, but hitherto with little success. Some deputies have occasionally met: several states would not send any; others, owing to their great distance or other causes, could not: and whilst Buenos-ayres, in its effort for the accomplishment of that measure, has at the same time shewn a strong disposition to avail itself of its situation and population for retaining some influence and controul over the whole, a partial reaction against independence appears to have taken place in Potosi, and other mining districts below the Andes, owing to the retreat of the royal army from Lima into Upper Peru. It is probable that much time will elapse, ere any permanent political union can take place, among states so numerous, so different, and so distant from each other: but they have not many causes for discord, and as long as the important navigation of the river Plata shall not serve the ambition of the one to the prejudice of the other, and shall remain open to the export of their productions, the interior may be tolerably free from disturbance, although in a weak and unprotected situation. By following the three great roads already mentioned, that description will be facilitated, and principally found in the following statement of their post stages and distances.

NORTH ROAD FROM BUENOS-AYRES.

ITINERARY FROM BUENOS-AYRES TO PARAGUAY.

POST STAGES.	Estimate of Population of all Origins, from various Authorities.	Leagues.
BUENOS-AYRES. *Bishopric.*	80,000	0
Santos Lugares		3½
Conchas		3½
Arroyo de Pinazo		4
Pilar		4
Cañada de la Cruz		5½
Areco *Rio*		4
Cañada onda		8
Cañada vellaca		4
Arrecife *Rio*		4
San Pedro		5
Hermanas		8
Arroyo de Ramallo		4
Arroyo de en medio		4
Arroyo de Pabon		4
Arroyo Seco		3
Rosario		5
Espinillo		4
San Lorenzo		3
Carcarañá Rio.		
Carcarañá		5
Barrancas		5
Colestiné, ó Coronda		6½
Bragado, ó Lomas		4
Monte de Los Padres		5
Santo Tomé		
SANTA FE	6000	3½
From Buenos-ayres		— 109½
Rio Paraná		5
Sauce grande		5
Potrero de Vera		7
Antonio Tomas		7
Hernandarias		4
Alcaráz		5
Rio Feliciano		2
Estacas		7
Arroyo hondo		5
Rincon del Yacaréy		5
Rio Guaiquiraró		4
Sarandí		5
Esquina ó Sta. Rita. *Administration.*		5
Rio corriente		6
Batél		3½
Encinas		2
Maruchá		8
Mojones ó Palmar		4
Sta. Lucia. *Admin.*		4
Algarrobos		5
Isla pelada		6
San Roque. *Admin.*		3
Pueblo de Garras		8

POST STAGES.	Estimate of Population of all Origins, from various Authorities.	Leagues.
Ambrosio		6
San Lorenzo		3
Tabaco		6
Empedrado		3
Peguajo		2½
Sombrero grande		2
Riachuelo		3
CORRIENTES. *Admin.*	4000	3
La Ensenadita		5
Ensenada grande		6
La Cruz		3
Uracuá		4
ASUMPCION. *Bishopric*	9000	4
Yajape		4½
Santa Isabel		5
Uguguay		2
Ytaybate		3
Enter the Jurisdiction of the Missions.		
Iviritingay		5
La Barranquera		2
Caraguatay		6
Rosario		5
Santa Maria		4
San Gonzalo		3
Santa Tecla		4
Curupaí		5
San Borja		5
San Antonio		3½
Ytapuá. *Admin.*		3½
Tacuarí		7
S. Cosme. *Admin.*		4
San Antonio		4
Albardon		5
Las Animas		5
Piraporarú		6
Curupaití		7
Caracaraí		4
Buyapeí		4
Potrero de Baez		3
Yvicuy		5
Cañavé		5
Guazucua		3½
Paraguarí		4
Nanduvá		4
La Cañada de Adana		4
San Lorenzo		5
Tembetarí		3
Paraguay. *Admin.*		1
From Buenos-ayres		— 419½

NORTHWEST ROAD FROM BUENOS-AYRES.

ITINERARY FROM BUENOS-AYRES TO LIMA.

POST STAGES.	Estimate of Population of all Origins, from various Authorities.	Leagues.
BUENOS-AYRES. *Bishopric.*	80,000	0
Puente de Marquez		7
Cañada de Escovar		6
Cañada de Rocha		5
Cañada de la Cruz		5
Areco		6
Chacras de Ayala		5
Arrecife		7
Fontezuelas		8
Cañada de Gomez		4
Arroyo de en medio		6
Arroyo Pabon		8
Arroyuelo del Sauce		5
Manantiales, ú Orqueta		5
Candelaria		4
Desmochados		6
Arequito		4
Esquina de la Guardia		4
Cabeza del Tigre		7
Esquina de Lobaton		5
Saladillo		4
Barrancas		4
Zanjon		4
Fraile muerto		4
Tres cruces		4
Esquina de Medrano		4
Esquina de la herradura		4
Rio tercero paso de Ferreira		4
Tio Pugio		4
El ojo de agua		4
Cañada del Gobernador ó corral del Maestro		4
Impira		6
Rio segundo		5
Punta del Monte		6
CORDOVA. *Bishop.*	4500	5
		—173
Rio carnero ó noria		10
Sinsacate		4
Ojo de agua		6
Macha		4
Intiguasí		4
Santa Cruz		4
San Pedro		4
Durazno		4
Chañar ó Piedritas		4
Pozo del tigre		4
Portezuelo		6
Remanso ó Ambargasta		8
Noria de Ayuncha		28
Simbolar		6
Silipica		7

POST STAGES.	Estimate of Population of all Origins, from various Authorities.	Leagues.
Manogasta		4
SANTIAGO DEL ESTERO	very small.	8—115
		288
Capilla de Jimenez		9
Los Mirandas		5
Rio de Santiago.		
Vinará		6
Palmas		6
Talacocha		6
TUCUMAN. *Bishop.*	small.	8— 40
		328
Tapia		8
Bipos ó Ticucho		5
Hornillos		6
Pozo del pescado		4
Arenal		8
Rosario		6
Cañas, ó Encrucijada		3
Concha		6
Rodeo del Tala ó Algarrobos		10
Rio del pasage		5
Ciénaga		10
Cobos		7
SALTA	9000	9— 87
		415
Caldera		6
Cabaña		5
JUJUY	3000	7— 18
		433
Yala *Rio*		4
Bolcan		5
Hornillos		9
Guacalera		6
Humaguaca		6
Cueva		8
Colorados		6
Cangrejos		6
Quiaca		9
Mojo		8
Suipacha		8
Tupiza		5
Chapaca		4
Ojo de agua		9
Santo Domingo Cotagaita		6
Escara		4
Quirbe		6
Zoropalca		6

NORTHWEST ROAD FROM BUENOS-AYRES.

ITINERARY FROM BUENOS-AYRES TO LIMA.

POST STAGES.	Estimate of Population of all Origins, from various Authorities.	Leagues.	
Caiza		6	
Chaquilla		6	
POTOSI	30,000	6—133	
			566
Yocalla		9	
Leña		7	
Lagunillas		6	
Torapalca		4	
Valcapueyo		4	
Ancacato		4	
Peñas		5	
Candor		6	
Venta del medio		6	
ORURO. *Admin.*	small.	10— 61	
			627
Caracollo		10	
Pan duro		6	
Aroma		4	
SICASICA. *Admin.*	very small.	4	
Chiota		4	
Ayo Ayo		4	
Calamarca		6	
Ventilla		7	
LA PAZ. *Admin. Bishop.*	18,000	5— 50	
			677
Laja		6	
Teanaguaco		7	
Guaqui, *(here begins the Lake Tituaca.)*		4	
Cepita		7	
Quilca ó tambillo		4	
Pomata		3	
JULI		4	
YLAVE. *Admin.*	small.	5	
Acora		5	
Chucuito		3	
PUNO. *Admin.*		4— 52	
			729
Here are two roads over the Andes; the one west, and over the Desert, or Travesia, from Puno to Arequipa, by			
Avilque		7	
Tayataya		6	
Santa Lucia		2	
Guagra		8	
Patí		5	

POST STAGES.	Estimate of Population of all Origins, from various Authorities.	Leagues.	
Tambo de ají		7	
Tambo de sal		4	
Chiguata		7	
AREQUIPA. *Admin. Bishop.*	20,000	5	
			51
and from Arequipa to Lima, by the sea side. The other north, from Puno to			
Paucarcolla		3	
Taracoto		5	
Navapuja		6	
PUCARA. *Admin.*	small.	6	
Santa Rasa		8	
Agua caliente		6	
SICUANE. *Admin.*	small.	3	
Cacha		5	
Checacupi		6	
Quiquijana		4	
Hurcos		4	
Oropesa		4	
CUZCO. *Admin. Bishop.*	30,000	4— 64	
			793
Zurita		7	
Limatumbo		6	
Marcaquasi		4	
Taraquazi		6	
Abancay. *Admin.*		6	
Cochacajas		6	
Pincos		6	
Andaguaylas. *Admin.*		6	
Uripa		12	
Ocros		12	
Cangallos		6	
GUAMANGA. *Admin.*	12,000	6	
Guanta. *Admin.*		6	
Parcos		12	
Paucará		4	
GUANCAVELICA. *Admin.*	5000	8	
Cotay		10	
Turpo		6	
Viñas, over the highest ridge		8	
Lunaguana		12	
Asia		12	
Chilca		8	
Lurin		7	
LIMA. *Admin. Archbishop.*	55,000	6—182	
From Buenos-ayres			975

NORTHWEST AND WEST ROADS FROM BUENOS-AYRES.

ITINERARY FROM BUENOS-AYRES TO CHILE.

POST STAGES.	Estimate of Population of all Origins, from various Authorities.	Leagues.
BUENOS-AYRES. *Bishopric.*	80,000	0
Puente de Marquez		7
Cañada de Escovar		6
Cañada de Rocha		5
Cañada de la Cruz		5
Areco		6
Chacras de Ayala		5
Arrecife		7
Fontezuelas		8
Cañada de Gomez		4
Arroyo de en medio		6
Arroyo Pabon		8
Arroyuelo del Sauce		5
Manantiales, ú Orqueta		5
Candelaria		4
Desmochados		6
Arequito		4
Esquina de la Guardia		4
Cabeza del Tigre		7
Esquina de Lobaton		5
Saladillo		4
Barrancas		4
Zanjon		4
Fraile muerto		4
Tres cruces		4
Esquina de Medrano		4
Here the Chile leaves the north-western road of Peru.		
Arroyo de S. José		8
Cañada de Lucas		5
Punta de agua		6
Santa Bárbara		9
Corral de Barrancas, ó Tegua		6
Tambo		4
Aguadita		4
Chañaritos ó Barranquita		4
Achiras		5

POST STAGES.	Estimate of Population of all Origins, from various Authorities.	Leagues.	
Portezuelo		5	
Morro		7	
Rio quinto		12	
SAN LUIS	2500	12	
		—	218
Laguna del Chorrillo		7	
Desaguadero		15	
Corral de cuero, ó Pirgua		9	
Corocorto, ó bajo del Maltés		9	
Dormida		9	
Catitas		5	
Rodeo de Chacon		4	
La Ramada		10	
Rodeo de Moyano ó Retamo		5	
Rodeo de en medio		4	
MENDOZA	20,000	7	84
			302
Villavicencio		15	
Uspalláta		15	
Punta de las bacas		13	
Pujios		3	
Paramillo		5	
Las Cuevas		1	
Cumbre, or Summit of the Central ridge of the Andes		1½	
Calaveras		1½	
Juncal, laguna del Inca		1½	
Ojo de agua		5	
Guardio del Resguardo		5	
Villa de Sta. Rosa		13	
Colina		19	
SANTIAGO DE CHILE *Bishopric.*	45,000	6	104½
From Buenos-ayres			406½

In the preceding itineraries, the towns which are capitals of the new independent states, or of more or less consequence, either from their size and population, or from the extent of their territories, are described with larger or smaller types: the other stages chiefly consist of hamlets or post houses only.

To the east of the northern road are Montevideo and Maldonado, which, with their districts, have passed from this former Viceroyalty to Brazil; and the state of Entrerios, situated between the Uruguay and Parana rivers, whose capital is Corrientes, a small and badly built town. The annual inundations along the mountains of Brazil, extend more or less from the river Plata to the transverse chain of Chiquito, and are such as to interrupt the communications by land, during several months; and the course of the largest rivers is often lost in them. The rock of granite, which forms a great part of those mountains, is covered with a thin crust of soil, seldom sufficient for the purpose of agriculture, but which bears good pasture.

With the exception of Asumpcion, there are no towns of any consequence in Paraguay proper. This state has been governed, since its independence, by a supreme Dictator, with absolute power, and without any political connection or much trading intercourse with its neighbours. Its militia consists of five or six thousand men, half of whom are on duty during six months. It is watered by many large rivers, particularly the Paraguay, Parana, Pilcomayo, and Vermelho; and, being moistened by abundant rains, it is rendered fit for almost any kind of productions: thick forests with numerous wild beasts and reptiles are found in it. Dobrizhoffer gives us an idea of some serpents, by relating that a number of men, mistaking one of them for the trunk of a large tree, sat on it some time, before they discovered their mistake! Azara, in the same manner, describes the violence of the southwest wind of the pampas, by telling us, that once a hurricane tore off the head of a horse which was fastened by the neck! Santa Fe, a town and district of Paraguay, forms now an independent state, whose territory adjoins the Indians, and has often suffered much from their depredations. The population of all Paraguay is rated by some at near a hundred thousand souls, and by others at one hundred and fifty.

To the east of the northwest road, towards the plains of Manso and Guanacos,

are the states and towns of Tarija, La Plata or Chuquisaca, Misque, Cochabamba, Santa Cruz, Apalobamba, and the very large countries of the Chiquitos, and of the Moxos, in both of which are some small settlements and missions. Among these, La Plata is the only city of any importance, and an Archbishopric; it is well built, and is stated to contain twelve or thirteen thousand inhabitants.

Between the northwest road, the western, and the Andes, are the states of San Juan, Atacama, the only province of this Viceroyalty which extended over the Andes to the Pacific; Lipes, Carangas, and Paria: and here, as already observed, for a longitudinal distance of above four hundred miles from the Andes, and two thousand from north to south, the climate is excessively dry, and the land partially and chiefly covered with small algarobs and acacias. A traveller relates, that on the paths across some of these regions, he only found a few hamlets, at a distance of above a hundred and fifty miles from each other, and that in one of them, the isolated inhabitants, living with primitive simplicity, had adopted celebrated names of antiquity among themselves. The whole state of Atacama, which is about nine hundred miles long, and four or five hundred broad, is so nearly a complete desert on each side the Andes, that all its inhabitants are supposed to be only about two thousand unsettled Indians. But near the large lake Tituaca, that of Paria, and the desaguadero which connects them, the country is very beautiful, and the inhabitants much engaged in agriculture and grazing, for the supply of the mining districts: these lakes are situated in a valley, which extends from the neighbourhood of Potosi to Cusco, with little variation, the distance of above six hundred miles. It was on the borders of the lake Tituaca, where the first Incas of Peru resided: between it and La Paz are seen some ancient and curious colossal pyramids, and gigantic figures cut out of stone. This last town, which was very prosperous, suffered much, as did Oruro, Puno, and many more, from the Indian insurrection of 1779. In all those which are described above and in the itineraries, are generally found from three to half a dozen convents or more, besides large cathedrals and other churches splendidly ornamented. In some are nunneries; and a few have hospitals, colleges, and other public establishments. There are near the Andes, in the northwestern parts of this

basin, several other districts, formerly corregidores, with very small towns or villages only, monastic establishments, and a small population engaged in mining or agriculture, now governing themselves independently, like those already named, without any political ties with each other.

The celebrated town of Potosi, once with above a hundred thousand inhabitants, now holds thirty thousand. The Indians, at one time fifteen thousand, forced to work in its mines, are at present less than two thousand, and voluntarily employed in them. The mountain, from which so much silver has been obtained, is 4360 feet above its base; and it is related, that the first discovery of its wealth was made by an Indian of Porco, who, whilst pursuing some goats, pulled up a bush, and found some pieces of silver adhering to its roots. Masses of gold and silver, of most extraordinary sizes, are stated to have been found in several of these mining districts.

Military commanders, priests, missionary monks, and others, who came from Spain, Portugal, and Rome, with rank and power, divided the greatest part of this continent among themselves, with royal grants or otherwise; and the portions were made of such large sizes, that comparatively to the extent of what is appropriated, and except in the vicinity of populous towns, or in some particular spots, it is held by few, and the limits of those possessions are in many instances undefined. In Chile, some private estates not only reach from the Andes to the sea, a length of about a hundred miles, with a breadth of twenty or thirty, but the owners claim also the same space over the chain down to its eastern foot, by which another hundred miles of pasture lands are added to those properties. Some of their cattle, in order to keep alive the right of possession to their masters and themselves, will often venture over the central ridge, and come down the eastern declivity: but the masses of that chain are so wide, and the herds of the Mendozines and San Juanistes so few, that there is yet no risk of hostile contacts. Even, therefore, on the Andes of Chile is there no common pasture land; and if a muleteer wish, that some of his beasts should have the benefit of the fattening and invigorating alpine plants, he must pay for it to the owner of a section of those mountains. The highest ridges and summits, being thus divided, bear the names of the Chileno estates below them,

such as the cordillera of Colina, of Ladessa, of Chacabuco. Other possessions, though not so extensive, are very large.

In this basin, many estates are said to be still more considerable than in Chile, and on both this and the western sides of the Andes, most of the largest and finest belong to the clergy; a great number of others are entailed on the eldest branches of families, by *mayorasgos*, so that a very considerable portion of this continent is at present unalienable, and it is not therefore so easy as might be supposed, to purchase freehold land, or to obtain grants of it. The consequences of the mayorasgo are much felt in Chile, and measures have already been adopted there, for preventing its extension.

A large estate is called an *hacienda*, in Brazil *fazenda*, words which more particularly denote the mansion on it, where the works of slaughtering cattle, drying beef and hides, making tallow, rum, sugar, and preparing other commodities and productions for their markets, take place. An estate consisting of grazing lands is also called here *estancia*; and a *quinta* properly means a farm paying the fifth of its produce to the owner, but is farther applied to a country house, with a little land around it: the name of *chacra* is likewise given to a small possession, at a short distance from a city. Both on this side the Andes and in Chile, the owners of the immense possessions mentioned, are also merchants, shopkeepers, miners, and manufacturers. In their town house they have a store, where they sell in wholesale and retail, and they are concerned in foreign adventures, although these are now principally left to foreign merchants: on their landed possessions they keep shops in the most convenient situations, but principally in their own mansion: they have *mayordomos*, or stewards, to superintend the business of the estates, and of the mines if any, and shopmen to manage that of the stores: they are tanners and millers. The little farmers, the labouring miners, the cottagers, and all working peons, are supplied by them at exorbitant prices, and generally in debt to them; so that their labour, and, if I have been correctly informed, often some young members of their families, become in some degree mortgaged to the owners of the land, who, besides all this, fill up all civil and military places. The whole wealth, power, and influence, being

thus concentrated in a few, the bulk of the people remains poor and dependant, and there are no links by which to connect the community: that part of it which, when numerous, possessed of property and morals, forms the great strength of the chain, the chief prop and stay of the civilized body, the middle ranks of society, is not found in this land; and from the few who hold and are all, to the many who hold and are nothing, the descent is but one abrupt and deep step: some little property does undoubtedly pass into the hands of carriers, small farmers, and artisans, in large towns, but it gives them no political importance.

The materials most used for building, here and in Chile, are called *adobes:* they consist of large plates of indurated earth, about four inches thick, fifteen or eighteen long, and nine or twelve wide. Earths of an adhesive nature are rendered muddy; some chaff is thrown over them, and the whole is well mixed by treading down and shovelling up: this done, the mud is cast into plates, which are dried in the sun, and which, when laid on, are bedded in the same substance, which also serves for plastering work, of different degrees of fineness. The Peruvians used adobes before the conquest, and the ruins of an extensive town built with these materials, are, I am informed, still standing near Truxillo: they mixed fragments of sea shells with them, and rendered the plates very hard and durable. The great Chinese wall appears to have been built either with adobes or with bricks, of a nearly similar description; and Sir George Staunton does not give a decided opinion, whether they were burnt in kilns or not, but thinks that they were so: there are remains of kilns near the wall; but these might have only served for burning the lime, which was found in considerable thickness between the plates, which, from the description of Sir George, have a blueish and not a reddish appearance. In the dry western regions of South America, adobes are sufficiently lasting, and sometimes they are burnt for foundations, in order to protect them from very destructive rats. In the largest cities several churches, public works, and other buildings, are erected with stones or bricks. The extraordinary moisture of the atmosphere at Buenos-ayres renders adobes inconvenient, as grass and moss grow there so fast, even in bricks and stones, as to require to be often cleaned out. Quick lime is generally dear, and of an inferior

quality, owing to the scarcity of fuel and the use of sea shells, as limestone is seldom conveniently found; and chalk, I believe, not at all, on either side the Andes. The roofs consist of tiles and thatch, the latter being often neatly covered on the west with a coat of mud. Humbler habitations are constructed with small posts, having branches or reeds interwoven between them, and a plastering of mud over the whole; others humbler still, are found sufficient for shelter, with a slight frame and branches only.

The plan on which the Spaniards have built the principal towns in South America, has contributed much to convenience, symmetry, and individual security against light shocks of earthquakes, and the sudden attacks of hostile Indians. The streets, which are of a good width, cross each other at right angles by means of *quadras*, or square bodies of houses, which occupy a space of 20,648 square yards, or a little more than four English statute acres, the corners of which are usually destined for shops, and in Buenos-ayres, more particularly for a public house and the sale of wines and spirits, the incessant cause of considerable mischief. On each side of the quadra are several gateways, which lead into as many square areas, three sides of which form a ground floor, with a suite of rooms and chambers, constituting a private dwelling. These apartments are generally spacious and lofty, opening one into the other, and, when well furnished and lighted up, exhibit a considerable degree of splendour; behind them is another square area, with offices and rooms for stores and servants, usually with piazzas, and in the vacant space are trees and garden grounds, into which the largest rooms open. In front and over the gateway is a first floor, called an *alto*, and this side of the building is particularly reserved for stables and coach houses, shops, stores, and offices for business, and also for receiving travellers and visiters. All windows, inside and out, are strongly defended by iron works, and sashes are seldom used. The towns near the Andes have not many first floors in front, lest they should be thrown down by earthquakes; and, as the ground is less valuable in them than at Buenos-ayres, the trees rising in the midst of very low houses, make them appear to an European very unlike towns, and when seen at a distance, the effect is very pleasing. This circumstance has no doubt given rise to

the description often found, of many cities of South America, by which they are represented, as standing in the midst of groves of the most luxuriant trees; whilst they often adjoin barren wastes, and the groves should rather be described as rising in the midst of those cities.

The plan of Santiago, the capital of Chile, which is introduced here, in Plate No. II., shews the effect of the distribution of bodies of houses into quadras. It is copied from an accurate diagram; but the view added at the top of it, is from recollection only, and without correct or classical delineation, being intended, as well for a general effect of the scenery of the Andes and of their central cordillera, from the town or its vicinity, as for a plan of the waste and cultivated lands between it and the foot of those mountains, and for a distance of about forty miles along them. The straight line on the right indicates, the canal which brings water from the river Maypo to increase the Mapocho, and the cultivated grounds along it: a line on the left shews a small channel, which carries water from the Mapocho, along the brow of the mountains, to a village about eighteen miles distant, by a cut called Salta de agua, which is said to have been the work of the Indians before the conquest.

There seldom is, in this part of the world, any intermediacy between the large house of a family of wealth or rank, and a small habitation, consisting of a room for sleeping, one for sitting, and another for cooking; the latter having its fireplace on the ground, and the smoke escaping where it can; the dormitorio, or sleeping apartment, divided from the sitting place by a wall or a piece of cloth only, and the ground sometimes floored with bricks: but a dwelling must belong to a very poor and unsettled family, if it do not consist of two sheltered places, one of which for cooking. In the west, particularly in Chile, a traveller who stops at a farmer's of some small property, and sleeps in open air, will sometimes see, in the morning, the whole family and servants lying down about the house and him, where they have passed the night. I remember the effect of the first morning scene of this kind which I unexpectedly witnessed. On waking, it pleased me much, but soon mortified me: I thought that the men, wrapped up in their common ponchos, with their heads and thick black hair uncovered, looked much more dignified than I did,

although my blanket, fine poncho, and night cap, made my birth a kind of state bed and furniture among them. Then the women exhibited an odd appearance, which, whatever their accomplishments might have been, did not at the moment put me in mind of angelic beings, formed for adoration; and lastly, when I looked at the dogs, cats, and poultry around us, I found, that in their sleeping appearance and attitudes, they looked more neat and graceful than any of us. The scene certainly was very picturesque, but almost too rural, and the distinction of ranks was not sufficiently established. In spots most exposed to incursions from neighbouring settlements of Indians on the pampas, the habitations have a small ditch and fence round them, which are often sufficient to deter small parties from the attempt to break in. The houses of the largest sizes are generally most surrounded with bones of slaughtered cattle, dogs and birds of prey feeding on carcases, pieces of hides, horns, and other impurities, which, to an European, may appear disgusting; whilst the inhabitants of these plains and of Chile might say, that, to them, the sight is as agreeable, and the smell as little offensive, as those of a fine farmyard in Europe.

The habits of the rich do not offer much for description; those who are not engaged on their estates in killing cattle, in mining, or in some public employments, are generally in their stores; they rise and dine early, sleep much after dinner, and in the evening go to *tertulias* or parties, to the theatre, or to gaming places. Notwithstanding the considerable property often contained in their shops, and their love of gain, yet there is no emulation nor contrivance, for attracting customers or outshining one another: their dress is much the same as in Europe, and sometimes very expensive. It is with the country people, that we are to look for more characteristic features; and amongst them, the herdsmen of the pampas, who are of all kinds of origin, appear to live in a wilder state than the roving Indians. Every herd has a master herdsman or *capataz*, who has under him an assistant for every thousand heads of cattle. These herdsmen live in huts placed in the middle of the grazing estates, without doors or windows, and with seldom any other furniture, than a barrel to hold water, a drinking horn, some wooden spits for roasting beef, a small copper pot for taking matés, and hides to lie on. Few of them are married. Their office is to ride out from time to

time, and see that the herds do not leave the limits of the estate: they drive the oxen and cows once a week into an enclosure called *rodeo*, and the horses into the farmyard or *corral*, and there they mark the new born with the stamp of the estate: they attend to what other service the breeding of cattle requires, but pass much of their time in idleness: they live at a distance of five, ten, or even twenty leagues from one another, and if they have an opportunity of hearing mass, they remain on horseback at the church or chapel door, which is left open for them, and they usually baptize their children themselves: they are very hospitable and highly disinterested, but strangers to feelings of friendship and sympathy. It is truly extraordinary that, either on the pampas or in Chile, among people who live in lonely habitations, use their horses as we do our feet, and are surrounded with faithful dogs, I should never have witnessed a single mark of affection to these animals: even children are seldom playful with dogs, which are their most steady companions by the fireside. When it rains, the herdsmen of Buenos-ayres pull off their clothes, and lay them under the saddle until the weather again becomes fine, because, say they, the body dries the quickest.

The flocks of sheep are only attended by large dogs, called *ovejeros*. As soon as born, puppies are put to suck ewes held down to them by force, and are by degrees taught, to drive the flock out of the fold in the morning, and to bring it back in the evening: the dog has as much food and drink as he likes before he goes out, and some meat is tied round his neck, else the flock would probably be driven back before the end of the day. These dogs are said to refuse mutton: they constantly remain with the sheep, prevent them from straggling, and defend them if attacked. I have not seen any of them, nor have I had an opportunity of witnessing this.

The countrymen of this part of South America, seen on their feet, and afterwards on horseback, appear very different beings. Off their horses they are, if not unable, at least unwilling to move half a dozen steps, and seem in a torpid state; but on them, they display much activity, and when necessary, become almost indefatigable. Their dress consists of a black woollen or yellow straw tapering hat, a coloured kerchief tied round the head, hanging out behind and flapping to the wind, a

poncho or mantle with stripes of various colours, which covers the body down to the knees, and is put on the shoulders by means of a slit which lets the head through it; boots made with the unwrought skin of a horse's hind leg, which fits without any seams, and only lets the end of the toes out, and very large spurs with sharp rowels near an inch and a half long. The saddle consists of a large piece of leather, with two of wood at each end, so as to fit the horse's back, and it is fastened by means of two iron rings and a thong: under it lie several skins and woollen cloths, which prevent the animal from being chafed, and provide the rider with bedding at night: the stirrups are very small, and commonly made of a piece of wood of the size of a hoop, bent into a triangle: the bridle has very stout reins, made of twisted strips of hide, ending with three or four knotty thongs, long enough to lash the horse in every direction. This whip rein, the bit which is of great strength and purchase, and the tremendous spur, form in all a much greater power than that with which the horse is subdued in Europe. A hat with a broad rim, a poncho of good workmanship, small clothes with white drawers hanging out of them, silver spurs, and ornamented horse furniture, indicate a person above the herdsmen and the labourers or peons. In Chile, such a man, instead of boots, usually wears red or blue stockings with shoes; and the stirrups, in that country, chiefly consist of large and solid pieces of wood, with a socket to receive the end of the foot.

These people are such good horsemen, that they appear as identified with their horses; they ride through woods, as if both they and the horse were cats: if they want stones to throw at some dogs, they pick them off the ground without dismounting, stooping as if they were on their own feet. In racing, they will endeavour to entangle one another's horse at full speed by throwing a noose at his feet, and to bring him down; then, if they should lose their seat, they generally remain standing on the ground, with the bridle in their hand: or they will stop their horse so short, that being suddenly pulled back with the great power of the bridle, it is made to sit on its hind parts: they mount them with extraordinary ease and grace, and without any inflection whatever of the head or chest; they do not stretch one leg and carry it stiffly over the horse, but they bend or, as it were, fold

it in backwards, take it over, and let it drop down. As the stirrups only support the tip of the toes, they are rather felt than used: after a little practice they are found very convenient for the walk or gallop, but at a spring trot, the feet would soon be tired and in pain. As the poorest Brazilian is too proud to carry a bundle across a street, but will bid a slave do so for him, in the same manner does the dread of any kind of exertion on foot operate with these country people, and their horses are the whole day either in use, or in readiness before the house, as walking sticks may be with us: they make them drag nets, thrash corn, mix up earth or mortar; and they will stand several hours on them, before a public house or a booth, drinking, smoking, hearing songs, and conversing, without alighting, and then ride away. When off them, they squat round the fire, smoke again, drink matés, eat and sleep, unless they take to cards, when another change of scene takes place; for, whilst the horse seems to be the only means by which they can display their activity, gaming appears almost the only way of rousing their feelings.

The weapons most commonly used, are, the knife on foot, the *lazo* and the balls on horseback. The lazo is a strong rope, made of plaited strips of hide, from thirty to forty feet long, and having an iron ring at one extremity; the other end, being passed through it, is fastened to a like ring under the saddle: the thong forms therefore a noose, which is drawn in, till within three or four feet in diameter; and the rest being coiled up to it, the whole is whirled over the head, and flung in full speed at such beast and such part of it, as it is intended that the noose should fix upon, and which is seldom missed: then the rider, turning his horse suddenly round, draws the rope tight and pulls the beast along with him. Horses are likewise made to draw a carriage, by means of rings fastened to a girth round their bodies, and seldom by a collar. It is somewhat extraordinary to see them, with their riders, pull a powerful and restive ox, or, without them, steadily keep the beast on the ground. The custom of lazoing appears to have been brought here from the south of Europe: but one which, it seems, was found generally to prevail in this country, and which by its ingenuity might assist in tracing the origin of these Indians, is that of balling, which the Spaniards adopted for catching ostriches and wild horses, and

as a weapon for attack generally, so that horsemen on these plains seldom ride without it.

The ball-thong consists of two round stones, weighing from a half to one pound, sewed in a piece of leather, and connected by a hide rope, about fifteen feet long: one ball is held in the hand, and the thong attached to it is coiled up and whirled over the head with the other stone: the coil is by degrees let out, and when the object of attack is within seventy or eighty feet, the whole is loosened, the ball held in the hand being let go, in time to prevent any interruption of the power given to it by the rapid swing: the two balls fly along like chain shot, until, coming in contact with the legs of an animal, they twirl round and entangle them. Sometimes three balls are used, two being whirled and one held. The course of the animal being thus impeded, the lazo is flung at it; and if a wild horse, it is afterwards broken with the spur and violent exercise only, guided with a rein without a bit, which is seldom used before the horse is tamed. The balling of some ostriches will be seen in Plate IV.

On the Andes of Chile, stones are found which are mentioned in Molina's, and of which, during an excursion, at a considerable height, I picked up two, which I brought with me. It appears probable that these stones were used by the Indians before the conquest, for balling guanacos and other animals, or perhaps enemies: they have holes in the middle, through which the thong might be passed, and remain attached to the stones by means of knots.

As the balls and lazo are used with extraordinary dexterity, at the fullest speed of which a horse is capable, an European cannot expect to avoid the effect of hostile intentions on the part of any inhabitant here, by outriding him: such an attempt would indubitably end with his being entangled, lazoed, and dragged away: the best mean of escape, therefore, is that of riding immediately up to any apparently hostile person, when within reach of his thongs, and of seeing him depart in such a direction, as will prevent a throw without his turning his horse back again. Fire arms are generally much dreaded by people roving for plunder, and seldom in their own possession.

Women, as well as men, smoke cigars, and it is only among the superior class of the former, that they do not participate in this occupation, which seems to vie with the infusion of hierba, in affording the greatest share of enjoyment to these people: but women are much less idle than men: they spin by means of a long bobbin only, which they twirl with the hand, and whilst it is turning, as much thread is spun as the motion will allow; then, dexterously making fast the thread to the bobbin, they twirl and spin again.

BUENOS-AYRES, situated in 34° 40′ S., is a large city, the population of which does not probably fall short of eighty thousand souls, and exhibits to an European a scene quite new, owing to the lowness of the buildings; the throng of country people on horseback, of a wild appearance, with a dress as different from that of the town's men, as the smock frock is from the coat of a fashionable Londoner; and to huge carts, drawn by four or six oxen, whose rough axletrees are groaning with stunning sounds, whilst their tall wheels are slowly performing their rotation; or with two oxen only, and a driver seated on their yoke beam, unmercifully pricking them with a sharp goad, and beating their heads at the same time with a large mallet.

The heat here in summer, at three o'clock P. M., has been generally observed to be from 88° to 90° of Farenheit in the shade, and sometimes to approach 100°. In winter a slight frost, of at most three or four degrees below the freezing point, will perhaps once happen, and last a few days; but the temperature soon resumes a much higher degree, and snow is unknown. Thunder storms are very frequent and dangerous, particularly in summer; and in the year 1793, the lightning struck thirty seven times in Buenos-ayres, and killed nineteen people. During my short visits here, I more than once saw the lightning flash for several hours, almost without intermission, and shew the sky in a constant blaze: the rolling and claps of thunder are very loud, and generally accompanied by heavy rains, whilst at some distance to the westward, sunshine is uninterrupted. The atmosphere, although very moist, is uncommonly salubrious here.

Owing to sandbanks, ships of war and of trade must remain at anchor, in an exposed situation, at five or six miles from the landing place. The town is built with bricks

and adobes; some churches and convents, with a handsome white stone: it is distributed into quadras; a few streets are paved, and others hold deep mud or water in them. A spacious public college, not yet in a state of much forwardness, and two schools, on the plan of mutual instruction, established by a native of Great Britain of an able and philanthropic mind, with about a hundred boys, are patronized and supported by the government and clergy. This town is lighted up, but not very safe at night: when a murder is committed, the body is exposed in public to be claimed, and there generally ends the occurrence. The market is very abundantly supplied: but wheat now sells in it at about ten dollars a fanega of 210 lb., or thirteen shillings a bushel, and some years ago, was only about half this price. When I left Chile, the cost of that weight, near the river Maule, was two reals and a half, or fivepence a bushel! That of beef, the chief food here, is regulated by law at half a dollar an arroba of 25 lb. Mutton costs about three shillings a carcase. Good fish is caught in the river; and partridges, with other fine birds, in the plains. Various other kinds of cheap provisions are found in this market, and here are two or three English hotels, with public tables and plentiful fare, for two dollars a day. Water is daily sold in the town, and the horses kept in it are chiefly fed with lucern and barley grasses, which are brought twice a day for them. The higher classes of women dress very well, and after European fashions: they have a fair complexion, and a ladylike appearance: many display elegant figures and much beauty; but there seems to be some want of that mildness of expression and flexible dignity of manners, which are no less expected than pleasing in their sex. The Buenos-ayrians are fond of society: dancing is here, as in other towns of this country, a favourite amusement, and they have a small theatre.

Here are a very considerable number of foreign merchants and tradesmen, and a manufactory of fire arms near the town. The chief exports are hides, tallow, dried beef, and some articles of transit. European goods are distributed from hence into the interior, against precious metals, hierba, furs, ostrich feathers, ponchos, carpets, saddlery, and the productions of grazing and agriculture. The government of this state consists of a supreme Director and a Junta.

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CHAPTER VIII.

DEPARTURE FROM BUENOS-AYRES.—ARRIVAL AT PORTEZUELO.—DIGRESSING EXCURSION.

ONE Englishman, two Germans, and myself, in a carriage on two wheels, manufactured in Buenos-ayres, left it on the 8th of May, 1820. We had hired three *peons*, a term which I shall henceforth use, as it is comprehensive, and extends to guides, servants, labourers, porters, and generally all such as are hired by the day, or for some particular service not permanently domestic. Flexible trunks, neatly made here with hides, containing the most necessary things, and whose single weight did not exceed ninety pounds, were loaded on pack horses, one on each side, and between them was placed some bedding. In the body of the carriage we had a good supply of Paraguay hierba and China tea, sugar, boiled tongues, and implements for boiling water and for eating: under it, on a suspended hide, were saddles and bridles, in case that any irremediable accident should happen and render riding on horseback necessary, some tools, leathern bands, and a little cask intended for water in the west, but which the peons said would ride better if filled with Mendoza wine; all so stowed and balanced by them, after many councils, alterations, and delays, for a drive of nine hundred miles at a gallop, as to indicate, that a day or two after starting, our vehicle would be disabled.

Some of the streets of Buenos-ayres were rendered so bad by the mud and water in them, that we were under the necessity of alighting, and of taking several turns, before we could find a practicable way out. The first seven or eight leagues were through a country enclosed with hedges of aloes and prickly pears, of considerable height and thickness, better formed to displease the beast which cannot

penetrate them, than to please the traveller who cannot see over them, and report in his narrative the appearance of what lies behind, consisting of quintas or country houses and small farms, with corn fields, lucern lays, plantations of vine, orange, lemon, olive, fig, and other fruit trees, in garden grounds and orchards.

Having passed the last enclosure, we entered the pampas; and here, indeed, the eye may see as far as its power can reach; neither hedge nor tree is standing in its way. We passed through the little Buenos-ayrian town of Luxan, on the river of the same name, consisting of fifty or sixty houses and a church, with a detachment of soldiers, where, with half a crown, we avoided the search of our trunks; and having arrived at the river Arecife, which runs into the Plata and often swells considerably, we were obliged to cross it in a canoe, and had much trouble in getting our carriage through it, which had already experienced some considerable shakes in passing through muddy streams and small bogs. The road near Buenos-ayres, and the track over the plains, were soft and much cut in deep ruts by the traffic of carts. Our peons, who were guides of long experience, said that we should not have good travelling until we got out of the rainy country, the limits of which they placed at about sixty leagues from that city.

The operation of passing the Arecife lasted three hours, and having got to the post house of the same name close by it, we dined with its owner, at his particular invitation. He appeared to be, in his circumstances, a man superior to those of the former stages: he had a large garden, a few enclosures, and some inclination to agriculture. Feasting being over, he told us that he intended to make us a present of our dinner; and this, with so much gravity, with such an expression of countenance, as evidently indicated the assumed exhibition, or the consciousness, of a great honour conferred by him, with extraordinary condescension, by asking us to his own table, where, whatever the honour, cleanliness and good cookery did not preside. But why not allow this man the gratification of plainly telling to his guests, what in refined Europe is often no less expressively looked to one's own, although perhaps with a more civilized and dignified countenance? In order, therefore,

Sketched from Nature by F. S. *Drawn on Stone by A. Aglio* *Printed by N. Chater & Co*

A VIEW / *taken near Buenos-ayres* / OF CATTLE,

Caught with the Lazo for Slaughter.

Sketched from Nature by P.S. on Stone by A. Aglio

Printed by Rowney & Forster

CATTLE *houghed for slaughter.* — OSTRICHES *balled.*

to deserve, that on similar occasions our feelings should be indulged in their turn, each of us, drawing one of his legs back, made him a low bow, with an expression of pleasure, which would have challenged that of any little boy receiving a rich cake, or of a courtier an investiture of self importance. When we left the table, an ancient, but large and stately, Spanish coach, which was just able to rest on its wheels, and had been drawn out of a shed which concealed it, stood in our full view, to the end that our opinion of its possessor should be raised still higher, and the honour done to us receive a more lasting impression. This was quite fair. In Europe, when company arrives, the covering is taken off the splendid chandelier to dazzle, though lights may not be in it; and chairs or sofas, which before, with an humble appearance, served only to rest upon, are, by a sudden change of dress, rendered magnificent, in order that they should be looked at.—Soon after leaving the post house we passed through the village of Arecife, consisting of perhaps twenty scattered houses with small enclosures, and at the distance of about a hundred and fifty road miles from Buenos-ayres, we entered the district of Santa Fe, in Paraguay.

We had passed, on our way here, by a piece of ground into which a considerable number of oxen and cows had been driven, for the purpose of being caught with the lazo and slaughtered. The beasts were running round the fence as fast as they could gallop, for the purpose of avoiding the thong which men on horseback, riding at full speed, were flinging at them. The scene was new and very spirited. The Plate No. III. is a representation of it, and that No. IV. shews an instance of the extraordinary cruelty with which animals are treated here, and of which no description can give an adequate idea. Whilst the lazoed beast is held fast by the horse and kicking, another horseman flings a noose at its hind legs and entangles them: both the horses then are made to draw the ropes tight, and the ox, no longer able to struggle, is hamstrung with an axe: its throat is at last cut, and the carcase hacked lengthways into three pieces, which are hung up in carts, and carried to the beef markets.

The Santa Fenes were, at this time, at war with the Buenos-ayrians: it was

waged on a small scale, but with the greatest animosity. A postmaster of the former party requested us to walk with him to some kind of garden near his house; and there, under a tree, with a savage exhibition of pleasure on his countenance, he shewed us thirty or forty dead Buenos-ayrians, whom he had collected and lain in a heap round the stem, with their clothes still on, the flesh having been carried off by the atmosphere and birds of prey.—The road through this province, after passing some little hamlets, led us to Esquina de la guardia, a small barrack near the river Tercero, with a fortified ditch and a few soldiers, for the purpose of checking the incursions of the southern Indians; and very shortly afterwards, to Cruz Alta, where, having travelled another like distance of a hundred and fifty miles, we crossed the small briny river or brook Saladio, and entered the state of Cordova, of which it forms the limits.

A further drive of seventy two miles, making three hundred and sixty nine from Buenos-ayres, brought us to Fraylemuerto, a Cordovine village of about thirty small and scattered houses with a chapel. The inhabitants were here well dressed, and appeared in easy circumstances. We were still skirting the Tercero, which is the largest river seen from Buenos-ayres to the Andes, and appears to be about half the size of the Thames at Oxford, or of the Aar at Bern: it is fordable with difficulty, and only in places known to the inhabitants near it, who often drive their cattle and themselves across it, in order to avoid being carried off by the Indians: it flows with a gentle stream, and its banks, which may be from fifteen to thirty feet above the water, frequently exhibit at their surface a stratum of considerable extent, some few feet in thickness, of a grey substance, which has the appearance of an old bed of sea shells, through which the river made its first channel over the plains: below this is the main soil, of a pale yellow tint, and wholly shewing, I think, an alluvial deposit. Near this place are some small hamlets, and thin patches of woods, chiefly consisting of short acacias with straight stems, neither of which, nor the pasture, and some little spots of cultivated ground near the habitations, looked at all pleasing, owing to drought and neglect.

Having left Fraylemuerto, a place which, on a subsequent journey, and owing to the incursions of a military chief with about two hundred and fifty men of all descriptions and origins, was the cause of some difficulties and uneasiness, and having travelled from thence seventy one miles, we arrived at Punta de Agua, another small village with a chapel, the post establishment of which is in a retired spot, and consists, like many others, of a small habitation more like a hut than a house, but having near it, ruins which indicate the former existence of a good dwelling, and which now serve for cooking and for the work of a loom. Entering into this hut, we were struck with the appearance of the postmaster's wife, which was not only that of a lady, but of a woman of fashion: she was a tall and elegant figure; had fine eyes, a delicate complexion, with the remains of much beauty: we were afterwards told, that these were attributes which belonged to many of the women of Cordova where she was born. Already indeed had we seen, among the female sex on the road, a good figure, fine eyes and features, with beautiful teeth, shewing themselves through the dirt of the cottage, as if nature would not permit her fairest work to remain hid under a homely and slovenly dress, a dishevelled hair, and general uncleanliness: but here, we suddenly passed from the view of rustic beauty to elegant forms, and an appearance which might have graced an European drawing room. The sight of this woman soon reminded me of the queen of Buttermere, whom I had seen, like her in the wane, but with a countenance of more interesting expression. Here we saw the first algarob tree, and the cochineal insect with its shrub, near the house, the owners of which knead the cochineal into small cakes for dying: they obtain a bright orange colour from soot; the green, the blue, and several others, from vegetable substances; first boiling the yarn with alum, except for the blue colour: they make ponchos and other articles of dress and furniture, principally carpets, which are very like rich English rugs, and are used for sitting or lying down: some of these were exhibited to us, of truly fine texture and colours. They are here more careful of their sheep, and the wool is of a good quality.

At the Esquina de Medrana we had already left the river Tercero with the road of Cordova and Peru, and shortly after quitting Punta de Agua, we saw before us, a little to the right, a chain of the Cordovine mountains, the view of which was very pleasing, notwithstanding their barren appearance, and relieved us from the fatigue of looking so long at boundless plains; as, from Buenos-ayres to this spot, I do not think we had seen so much as a hillock; I might almost say a mole hill, were it not for the earth thrown up by an animal, I believe the hormiguero, which looks like an owl, and burrows under it so as to render it dangerous to ride on horseback at night on these plains. The ground, all the way, is only unlevelled by undulations of smooth and extensive forms.

After travelling a hundred and twelve miles from Punta de Agua, we reached Portezuelo, a very small hamlet lying at the most southern extremity of the mountains of Cordova. This spot has a picturesque appearance, the few and small habitations of which it consists, being with difficulty distinguished, from fallen fragments of granite, and from some peach trees which rise among them. A hollow piece of ground with a little water, forms by its verdure a strong contrast with the surrounding scenery, and a miniature of a chapel informs the traveller, that the rites of the Roman catholic religion are performed here. Although this southern projection into the pampas does not rise above the height of a hill, yet we hailed it as a mountain scenery, and as the foreground of those immense masses which we were approaching, but which were not visible yet. A view of Portezuelo is given in Plate V. Three rocks, seen in continuation of the mountain, are brought into it, only to shew the situation of what appears to have been a ridge of old sea breakers.

Soon after leaving Buenos-ayres, our carriage had given us much trouble, by incessantly requiring to be bound and strengthened with slips of hides, and we regretted much that we had not resolved to travel on horseback. The muddy streams and swampy grounds had been replaced by a soil and an atmosphere so dry, that the guides, when getting into this new climate, are in the habit of covering

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the shafts and wheels of carriages with bands of moistened hides, in order to weaken the very powerful effect of the air and the sun on the wood. Except some spots, where going fast is not possible, the travelling carriage is driven over at a good gallop, by one or two postilions, according to the number of horses required: the pack horses with their loads are kept at the same pace by the peons on horseback, who whip them along with thongs, and prevent their leaving the road for the pasture ground; so that, if the vehicle can stand it, this way of travelling is nearly as expeditious as riding on horseback with baggage. It is hard work for the men, who are the whole day in continual exertion, and at night are assisting in preparing supper. This over, and the cigars smoked, at ten or eleven o'clock, they lie down on the ground, usually in open air, and rise again at dawn of day, to see that the herd of horses is fetched from the pasture into the corral, and to light a fire for drinking some matés of hierba.

The soil, all along the road, appeared remarkably friable: neither sand nor tenacious clay could be seen; its surface was alternately of a reddish brown, or of a dark grey tint, and the subsoil of a pale or reddish yellow colour. The grey patches have all the appearance of having been deposits of calcareous shells, such as the upper stratum exhibited at intervals along the banks of the Tercero. They were also noticed by Helms. I could not discover any stones whatever, until within forty or fifty miles of Portezuelo, when a few very small fragments of the red granite, which chiefly forms the mountains of Cordova, begin to mix with a still very considerable, and I believe alluvial, depth of soil.

Some spots, whose shape is favourable to moisture, are covered with saline incrustations, and it is said that a line of them extends the space of seven hundred miles from north to south. Common salt, fit for immediate use, is found in many spots.

Trefoil, and with it variegated thistles, cover the plains with luxuriant pasture for about two hundred miles to the west: the first has dark purple marks on its leaves, and is perhaps the *trifolium cherleri*, or hairy pink trefoil, exhibiting at this

time very much the appearance of red clover, and the thistles of turnip fields: the latter, when full grown, are cut for fuel. The wiry grass in bunches, by which they are replaced, resembles that which is seen in the hollow parts of the heath lands of Surrey. I do not think that either heath or fern exists here. A small plantation of peach trees, called *monte*, is generally found close to every habitation above the size of a hut; and towards the end of a long stage on horseback, a small dark spot in the horizon, is a sight much wished for, usually indicating the posthouse, and its monte which is cut every third year, and affords some shelter from the violent southwest wind.

With the exception of those little clumps, and of some few enclosures at the villages and hamlets already mentioned, all is open pasture land as far as the state of Cordova, and the neighbourhood of the Tercero, where is seen the acacia or espino, somewhat resembling our quick, but very inferior in appearance. Some of our forest trees might grow well along the banks of this river, which are sheltered, and would then become of very great service to the inhabitants at some future period: but this could probably only be effected by means of young plants from Europe, as it may be doubted if seeds would rise. The cultivated lands form mere specks on this road; and notwithstanding the very thinly scattered population, we found the price of wheat, within three hundred miles of Buenos-ayres, at six and eight dollars, and afterwards at four and five, the fanega of 300 lbs., which is from four to eight shillings a bushel. The grinding of two fanegas, or a mule's load, costs two dollars, and most of the inhabitants of these plains have to travel a long journey to a mill. But time is to them of little value, and travelling no expence. The beasts carry provisions for their masters, and the pampas food for the beasts. They pay nothing for a shelter at night, and a little dry dung with some bones and sticks, make the pot boil and the beef roast in open air. We met with a man who had, besides his corn, a numerous family with him, and we all slept in a small hut: they appeared affectionate to one another, and were very decorous in their manners and language. Wherever the soil is cultivated, it is very fertile; but we have long since entered regions, in which no culture can take place without irrigation.

Near Buenos-ayres, in the districts of the best pasture, many herds of cattle are seen grazing on private estates, and if there were sheep in proportion to the larger beasts, the scene would not differ much from some in Europe, particularly in Leicestershire. A few large buildings are seen at a distance, and although they do not exhibit the view of a neat architecture and arrangement, nor have any handsome trees or grounds near them, yet they look like substantial grazing farms, placed in the middle of pasture lands. The herds, when feeding, often form a pretty object, being ranged in single rows of great extent and straightness, their heads from the wind, and slowly advancing in regular order. The eastern parts of Santa Fe exhibit nearly the same appearance; but afterwards, both the habitations and the cattle decrease much, and little else is seen than the horses of the postmasters, with now and then some very thin herds of oxen and cows, a few small flocks of sheep, guanacos, and some ostriches.

This extremity of the mountains of Cordova appears formed of the same red granite, which Mr. Helms found higher up this chain, as far as Tucuman, where it begins to intermix with the clay slate. Underlying the granite, which is very coarse, are seen, in this spot, some deep and extensive masses of white and blueish grey rocks with other substances, which have very much the appearance of having originally been deposits of sea shells. Over these masses, which after leaving the granite, form a ridge of small elevation above the plains, and appear to extend some distance to the southward, passes the road which leads from hence to San Luis; and on the same ridge are seen a few very small hills of conical forms. Towards the north and Cordova, as far as the eye can see, and in these regions, owing to the state of the atmosphere, it can reach a very considerable distance, the greatest absolute height of the mountains might be estimated at two thousand five hundred or three thousand feet.

At this extremity of their chain, and in continuation of it to the southward, the ridge which I have just been noticing and supposing calcareous, throws up some rocks, which, by their situation and water worn shapes, shew such an appearance of having

long been the breakers of an old sea shore, that when standing at some distance behind their long range, the sea with the dash of angry waves against them, were hardly necessary for completing the effect of the scene; as if the water, rather long waited for than missed, must come at last with unavailing power, and, thrown up into broken spray, go with noisy murmuring back again. It was on my return from Chile to Buenos-ayres, and within a mile or two of these rocks, that their appearance struck me as being very similar to the breakers, which at intervals line the shores of the great ocean of the Andes. They seemed to extend far to the southward, and when I passed over the ridge to the eastward of it, the side on which we now are at Portezuelo, I thought that the pampas assumed a lower, more level and more uniform shape, than the ground to the west: but, of this difference I cannot speak with confidence. Should any traveller have time and inclination to obtain a fuller and better account of the plains here, he will bear in mind, that it is by passing to the westward of the ridge of these rocks that, if not mistaken in my supposition, the general effect of their former office in this spot can well be seen.

Coarse granite, at all similar to that which appears to form this mountain, will not again offer itself to us. The masses of this kind of rock, or at least the branches of its family, which are seen in the higher Andes in this parallel, seem to be, if I may venture an opinion, of a finer grain and more porphyritic nature. In Chile, on the western shore of the ocean, between Coquimbo and Guasco, lies an extensive tract which consits of a granite very liable to decomposition, and I have already mentioned, that we should have to notice a remarkable rock in the course of our journey. If leave be given that we should, for a few moments, borrow from the store of imagination the wings of Dædalus, and take a flight over the Andes, we shall have a better view of that rock with birds' eyes, than if we wait until we are travelling over it: the heat of the sun, tempered by the cold of that lofty chain, will not be sufficiently intense to expose us to the fate of Icarus, and before our peons have done dinner, we may hope to be back again here in safety.

Leave being granted, as silence implies consent, we have now below us,

between Coquimbo and Guasco in Chile, an open space, over which passes the lower or sea road, and which forms, either a kind of step, perhaps thirty or fifty feet high, or a gentle slope, rising from the sea to some small mountains which extend along the western coast, and whose mean elevation may be from twelve to fifteen hundred feet. The width of this tract seems to vary from about three to ten miles, and on it, very near the sea, are some large beds or heaps of sea shells reduced to small fragments, mixed with sand, which have somewhat of the same grey and blueish tints, which are observed in so many parts of the Andes and of the lower mountains: but here, the pieces of shells are visible, and the whole heap has a charred appearance. I must leave to a more able observer than I am to ascertain, if these little mounts exhibit or not the same features, which are assumed by so many granitic hills and mountains of conic forms, and particularly by those on the coast of Brazil. Such accumulations of calcareous fragments were only confusedly brought back to the mind long afterwards, by that association of scenes and ideas, which was much less the result of knowledge and of a regular system of observation, than of accidental coincidences among the objects which were hastily reviewed in travelling. The road over this open space sometimes approaches very near to the mountains, sometimes to the sea, and the surface of it consists of a white sand, evenly mixed with thin and light fragments of shells, the mean size of which may be the fourth part of an inch, either originally deposited here by the sea, or brought from its side by the wind, which, in winter, often blows with great violence from the north-west. How these fragments could have been so equally distributed over the ground, if not by the wind, after having undergone a partial decomposition, I should be at a loss to conjecture. This loose mixture of sand and shells seems to be of a very small depth, and is in many places blown off, so as to lay bare a hard crust, which lies under it, and appears formed or forming into a whitish rock.

I think it was at a distance of eighty or ninety miles from Coquimbo, and very near the sea, when, being on my way to Guasco, I met with some sections of that rock, which seemed to shew an incipient state of formation, being only an amalgam

of the shells with coarse and fine sand, adhering slightly together. But after having travelled over several leagues of the rock, it began to make an exhibition which surprised me much: it was better formed and more compact; the fragments of shells appeared as if in the act of gradually losing their original shape, and an evident change to be taking place throughout the whole component parts of the mass, although all could still be distinguished: what at first only exhibited a loose amalgamation, was now assuming the closer and harder arrangement of a rock. This circumstance naturally prompted me to a careful examination as we proceeded, and I found such a gradual progress towards a regularly granulated compact and apparently granitic formation, as required the assistance of a full view of its former stages, and of their transition one into the other, over this extensive tract, for establishing, at least in the mind of a common observer, the connection between the first masses and the last. The sand, as well as the shells, appeared to have passed through changes, by which they were finally resolved into a rock very like granite, if not itself, which, in order to be more hardened, might have required age, or a different climate, sea water, or perhaps the colouring and binding qualities of some particular metallic oxides.

On my arrival at Guasco, I met with an English medical gentleman, who had by him some pieces of this rock: we exchanged expressions of surprise concerning it, and his own had been fully equal to mine: it had induced him to take specimens of it, and I, had unfortunately delayed doing so until my return. Whether or not the more perfect mass lies farther from the sea than what is less so, I cannot recollect; but I have reason to suppose, from the nature of a higher spot, a view of which we are going to take, that it is the same rock as that which forms several of the small mountains which I have described as bounding this coast, and below which the ground may be called a beach, some leagues wide: if so, it is a soft and decomposing granite. It will be remembered that we are in a part of Chile, where the only moisture is derived from two or three showers in winter, from occasional night dews, and from the sea air, which has but a very small influence on either the lower or

higher coasts, and seems only to cause a little more vegetation upon them than farther inland.

When we left Guasco in order to return to Coquimbo, with every preparation made for bringing with me specimens of the series of this interesting rock, we struck into a higher road, for the purpose of seeing the gold and copper mines of the small mountains called gold mounts, which are distant from the sea twenty or thirty miles: but when a narrow valley, formerly the channel of a river, and the ascent over a hill, glistening with yellow mica, brought us in view of the sea, I found that we were at a considerable distance from the shore, and though probably on rocks of the same formation as that for which I was looking, yet the line where the exhibition of its apparently different stages had been seen, was either overshot or lying nearer to the water, and I could not conveniently travel out of the way for it.

Here, however, another interesting scenery offers itself. Below the last mountains and towards the ocean, on a very extensive space of ground, are the scattered fragments of rocks evidently detached from them. These masses, viewed at a distance, have the appearance of human bones, many times the usual size: their forms are smooth and rounded, and the scene resembles a large field of battle, where fell in former days numbers of great giants, whose bones are still scattered on the ground; and, as we now are on the wings of imagination for a view of this spot, we may fancy a detachment of Titans, sent to the Andes for the purpose of extending their assaults on Jupiter from many points at once and from the highest summits, meeting with a repulse, and hurled down the distance of near a hundred miles from them; their flesh having fattened the eagles and vultures, and their bones now gratifying the curiosity of the traveller.

The path, from the gold mounts to Coquimbo, leads through the fallen rocks, and as they are approached, the exhibition becomes more interesting. Many which, at a distance, had the appearance of human heads, are entirely hollow, and the shell, which is only a few inches, and in some places less than one in thickness, could contain half a dozen of people and shelter them all round and over, except where

some opening, like a door way, probably indicates the side of the rock where the atmosphere first began the decomposing attack, by the effect of which it was excavated, until its harder crust only was left. Other masses and fragments of it are variously worn and scooped out, presenting many different shapes, all more or less rounded and smooth, shewing that a hardened shell caused the decomposition or decay to proceed from the inner to the outer side. Their colour, at some distance, is nearly white.

This granitic rock, of which I brought a specimen, appears to extend a considerable distance between Coquimbo and Guasco. The fallen blocks seen scattered along the foot of the small mountains of the coast, in many spots besides that already described, seem to be of the same kind: their shapes appear from the road less various and striking, but are evidently produced by the effect of the same cause on a like substance. Perhaps the side of the fragments, most exposed to the air of the ocean and the wind, is that where the decomposition first began; and a circumstance of this nature, of which if existing I do not remember taking notice, may render the scene much less singular when viewed from the sea, than from the mountain side. The rock first described cannot be far off the last, and I have some faint recollection, that what caused us to travel some hours very near the sea side here, when on the way to Guasco, was the situation of a small spring, in which the muleteer wished his thirsty mules to drink.

I fear that we have been too long a time on the coast of Chile; but, although I may unintentionally have occasioned fatigue, no delay has taken place by our flight over the Andes, for we now find ourselves again at Portezuelo, where the sun, although near its winter solstice, shines with great heat, and where no preparations are made for our departure. Sleep or inactive indolence reign over the hamlet. All is still but our peons, who are faintly heard breathing to us, that they must not be disturbed. The horses are yet on their pasture ground, and some time must elapse ere we can proceed.

The little chapel is opened, and glitters out of the rocks with ornaments. A

very impressive ceremony in these towns and villages is that of the *Oracion.* At matins and vespers, no sooner do the bells toll, than instantly every one within hearing stops, and makes a short prayer; some kneeling down, others only uncovering themselves. The sudden check thus given to the most eager pursuits is awful. Where there are protestants, they generally stop also, and take their hats off. The prayer lasts but a minute or two.——Was it truly for the sake of Indians that the erection of so many churches and chapels was extended to the wildest parts of this continent? What is now the fate of the souls, and the number is not small, of those who, from idolatry, woods, and freedom, were drawn into Christianity, mines, and slavery; and of those who thus converted them? Were the Indians brought over to our religion, to the end that they should really understand its doctrines and enjoy its blessings, or live the life, and die the death, of beasts of burthen? Their race is now in a great degree destroyed: a few of them still inhabit the forests, and fewer continue within the pale of Christianism.——Is our divine religion, in its farther progress through the world, gradually to cast off all mysterious and superstitious dress? to be accompanied with sincerity and simplicity, with toleration, peace, and good will, towards mankind; or with the stern belief, that so many millions and hundreds of millions, of beings who have already died, and all those who may be destined by our Creator still to live and die, without the benefit of Christianity, are to be for ever rejected by him; nay, that even Christians who differ among themselves in the performance of their rites, ought to hate and persecute each other more than idolaters? What difference is there, between a member of the school of Pythagoras, who believes that his soul "in days of other times" may have assisted bodies, now heaps of dust, in balling ostriches on these plains, as his master believed that he had assisted Euphorbus in handling his buckler, or a follower of Plato, who thinks that he may once have been some guanaco bounding over the pampas, or Patagonian hunting after it; and one, who, armed with the spirit of relentless intolerance and contempt towards the greater part of his fellow

creatures, is taught to believe in the exclusive efficacy in his favour, of some religious signs and ceremonies?——No one wakes, or cares to answer, and a more general siesta seems likely to follow.—Surely the doctrines of those heathen philosophers, however unfounded, and perhaps insincere on their part, were innocent deceptions, when compared with those that have been practised under the cloak of our religion.

CHAPTER IX.

DEPARTURE FROM PORTEZUELO.—ARRIVAL AT MENDOZA.—MODE OF LIVING AND OF TRAVELLING ON THE PAMPAS.

WE left Portezuelo on the 19th of May, and having got round the extremity of the hill over the rocks described in the preceding chapter, we had a view of the small mountains of San Luis, and entered the province of that name. The ground between them slopes gently down towards the middle, and resumes at the same time an undulated shape, with features somewhat stronger than before. We crossed the little river Cinco, near to which stands the post house, in a picturesque spot, the view of which afforded us some gratification, as we had gradually been taught to be pleased with little. This river is very limpid, winds here with fine turns, and has its banks thinly covered with some lean trees and shrubs, chiefly algarobs and espinos. Here is vegetation sufficient for the keep of some goats. The Cinco, like the river Quarto, which we had passed at Tambo, runs some distance to the southeast, and ends its course in swamps. If united, they would not form a body of water equal to that of the New river near London. The extremity or point of the mountain of San Luis must be turned, before the small town of that name, called from its situation *de la punta,* can be seen. The highest elevation of this mountain may be estimated at twelve or fifteen hundred feet from its base: it seems to differ entirely from that of Cordova, and, viewed at a small distance, the masses above the ground have the appearance of indurated earth, of smooth forms without any stratification. Far to the northward the ground rises, and small mountains of conical shapes form groups which extend towards the Andes. In passing round this point, the surface seemed also to exhibit underlying calcareous rocks.

The grass seen in this part of the plains continues of the same description; its bunches are large, but each plant has round it such a space of bare ground, that the land has very much the appearance of having been cut for fuel; and we could fancy that we were travelling over some of the lower wastes of Surrey, where heath is replaced by a kind of grass very like this, and where the turf has been partially taken off. Pasture is therefore scanty, but fattening, owing probably to the abundance of seeds which it bears, induced by so constant and powerful a sunshine. This grass, however, was in many places beginning to disappear, and we continued often to pass through some small woods, chiefly of espinos and algarobs, mixed with the chañar and the poleo, the latter being perhaps a bastard fustic. The tint of the algarob is a light pleasing green, but its foliage is so small and scanty, that it is overpowered by the dull brown colour of its branches: it is of the size of a small apple tree. The plantations of peach trees had long since ceased, and near some habitations, in small and irrigated spots of ground, we saw a few fig trees of a timber size, whose whitish stems, contrasting with their dark green leaves, had a fine effect. We also met with some apple and walnut trees, the latter of which bear smaller leaves and fruit than with us. The road is much cut by the traffic of the mules and carts which carry produce and other commodities between Buenos-ayres and Mendoza, so that, in a carriage, an increase of disappointments and inconvenience must be expected; to drive it on the grass is generally worse still: ours continued to want repairs, and to threaten dissolution at every step: and indeed to have proceeded so far, without being under the necessity of leaving the carriage on the road and of taking to horse, must be considered as an exception to what usually happens.

At the distance of ninety three miles from Portezuelo we found the little town of San Luis, on the western side of its mountain, the houses of which are built with adobes, and have extensive grounds attached to them, so that the appearance is that of a straggling village. The enclosures are chiefly formed with mud walls, from five to ten feet high: these are built by means of a wooden frame, which is

shifted as the work proceeds, and gives to it, when new, the appearance of a wall built with large hewn stones: they are at first neat and pleasing, but very much otherwise when in a decaying state. Owing to the tenaciousness of the earth, some long chaff which is mixed with it, and the great dryness of the climate, these fences last many years, and are to be seen in several other parts of South America. Within them are lucern lays, some fields of wheat and barley; vine, fig, olive, orange, lemon, apple, peach, and other fruit trees, with a few cypresses and poplars. Some houses are large, and, with their grounds, have the appearance of being inhabited by families of property. But this little state is much exposed: a chief, with a few followers, can spread desolation in it, and has lately done so.

We waited on the governor and had our passports inspected; a regulation with which every stranger is expected to comply, and which ought not to be overlooked; because, if any circumstance should prevent him from proceeding on his journey and bring him back again, he would find himself without claim to protection and hospitality, or perhaps liable to suspicion. Indeed a traveller, and particularly one coming here for the purpose of scientific observation, would do well to have the different countries, which he may intend to visit, stated in his European passport, and to take good care of it; as that which he must also procure at Buenos-ayres may be rendered less effective, or even insufficient, in the event of some war breaking out among the many different states, of which this part of South America is composed.

The road distance from San Luis to Mendoza is two hundred and forty six miles, or a few over. The ground is very like that of the plains already described, but rises more and more to the northward, so that the waters, which in all are but very little, flow in a southerly direction, gradually decreasing till they cease to run. The first thirty miles brought us near a small lake, called *la laguna del Chorillo*, which lies to the southward of the road; another view which, from its novelty, pleased us much: it was certainly not a loch Catherine with Trossacks, nor a lake of Geneva viewed from the Jura; but it was a pretty piece of water unexpectedly

offering itself in a spot, which, being called a desert, in the midst of plains already so like one, produced on us the same effect as if, placed near a den, with the expectation of hearing the yells of wild beasts confined in it, soft and melodious sounds had suddenly issued from it and struck on our senses. By means of algarobs thinly scattered on the ground, and of a prospect nearly horizontal, the country towards the lake looked as if it had been well wooded.

We crossed the desert, which is a rising ground nearly fifty miles in extent, without any water except a thin spring, sometimes dried up, about midway of it, and having descended the gentle western declivity of this spot, we arrived at the post house of Desaguadero, a very miserable habitation, where the wooden spit of a piece of roast beef, and a picturesque expedient of the peons, supplied the want of dishes. Here some water is collected, and mostly overgrown with reeds, inhabited by wild ducks, geese, and swans. The annexed Plate No. VI. is from a sketch taken of this place, and exhibits the herd of horses driven into the corral, for the purpose of selecting some for the next stage: the whole are brought in, in order that they may not lose the habit of remaining together.

We had just left Desaguadero, and were at a distance of one hundred and eighty miles from Mendoza, or of about two hundred and forty from the line on which rose the highest summits of the Andes, when we were gratified with the sight of that lofty chain; our opinions being at first divided between mountains and clouds, until a few of these, which were here and there skirting the snowy cordillera, soon left it, and no farther doubt remained. The considerable angle which the ridge itself, independently of the high summits above it, formed with the horizon, was the cause of much astonishment. I compared their appearance from this spot with that of Mount Blanc from the river Soane, a little above Lyons, not half the distance in a straight line, whose white top only, rose above the horizon like the half of a sugar loaf, whilst here, an extensive range of the Andes was high in the skies. The ground on which we stood was not elevated, and in reckoning the distance, I have estimated that of a straight and level line from Mendoza to the central base of

Drawn on Stone by A. Aglio from a Sketch.

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DESAGUADERO

the cordillera or higher ridge. I am aware that the road distance, from San Luis to Mendoza, would be more or less reduced by an exact knowledge of the longitude of these two towns; but against this reduction must be set, the length of the Andes from north to south which we could plainly see, and which was considerable; including, I have reason to think, the cordillera of San Juan and that of Talca. Therefore, some part of the chain may have been at a rectilinear distance of two hundred and fifty miles from us, or might be supposed to stand on the borders of Scotland, and we, in London, looking at it. But the Andes can be seen at a still greater distance: the Abbé Molina mentions three hundred miles; and a gentleman, on whose testimony I may rely, has twice seen them, without a glass, from some spot near the Punta of San Luis, rising considerably above the horizon, a distance which, in England, would remove the sight of them from Scotland to the Isle of Wight: or, if placed by the side of Mount Blanc, would render them visible at Paris.

Here then, and in height, when the distance is considered, the Alps already sink into insignificance; but not in beauty; for, the summit of Mount Blanc seen from the spot which I have mentioned, with the tops of Mount Rosa and of some other high mountain, only just rising above the ground by the side of it, all gilt by the rays of a setting sun, have a much more beautiful effect than the huge masses before us, which, owing either to their great distance, or to some peculiar arrangement and character, looked dull and heavy. Nor did they gain in perspective as we advanced towards them: the masses did not disengage themselves, but remained to our view of a gloomy uniformity, presenting the reverse of what is so pleasing in the gradual approach to alpine scenery. Before we could obtain a fine view of the higher chain, we lost it by degrees, as the lower continued to rise above the horizon, owing chiefly to the mountain of Mendoza in the foreground, which runs in a parallel line with the main range, as far north and south as we could see; and when we got near to the town of the same name, this last mountain alone, of a dull brown tint, formed almost the only prospect before us.

There is not, in the approach to Mendoza, any visible appearance of ascent to it: the plain in which it stands is more level than the ground on which we had travelled from Portezuelo, and might even be found lower than it. The only river which had indicated some rise to the west as far as the mountains of Cordova, is the Tercero, by its long easterly and somewhat rapid course, after which, the few other rivers or rivulets which traverse the road, flow to the southeastward, where they are lost. It may be doubted if the word *desaguadero* was ever meant for the name of a river. The great lake Tituaca below the Andes, in latitude 15° and 16° S. empties itself by a desaguadero, or large drain, into another lake to the southward, from which no water comes out again. The desaguadero on our road drains the lakes of Guanache into that of Chorillo, as may be seen in the map annexed to this work, from an original, which, I believe, has undergone the test and additions of a late military survey. As to the river Mendoza described in it, which winds back again and traverses our road, there was no water in its very wide channel when I crossed it, nor did I see any in the lake to the right, which is only occasionally formed by it. This spot seems to form a very extensive and shallow bowl, a feature which prevails below many parts of the Andes. I mention this, in the first place, to shew how little is all the water which comes down from that chain in this part of South America, and how much less still it must be farther to the northward; in the next, because the course of the river Colorado may hereafter excite some interest, particularly if its connection with the Tunuyan should render navigation practicable to the spot where the latter leaves the Andes. A settlement at the mouth of the Colorado may, in the course of time, take place, and by means of steam vessels not only establish, as far as Mendoza, an easy communication with fertile countries, whose great inland distance checks their trade and progress, but also become the channel of a better acquaintance with the southern pampas and Patagonia, and for rendering them useful.

The soil had gradually changed to a whitish colour: in a few places, particularly in the desert, it was sandy, and exhibited a quantity of very minute fragments of

quartz; but it more generally continued of a fine and friable nature, without stones, except in channels where waters from the mountains had formerly brought some. By degrees the bunchy plants of grass had disappeared, and vegetation chiefly consisted of a thin covering of algarobs, espinos, myrtles, and some other small trees or shrubs. The general appearance was that of an unproductive waste, and of a vegetation perishing by some unusual drought. The dead shoots and branches were often more numerous than the living, and even these seemed in a dying state. Here however, plants, like animals, learn how to exist with a very small allowance of moisture. Sometimes the ground was so even, and so bare of smaller plants, that shrubs a little greener than others would look like groves, recently and carefully hoed: the more so as imagination, tired of the monotony of the scene, was anxious to assist in producing some more pleasing effect. The absence of higher gratifications tends, in an extraordinary degree, to modify the powers with which we view, hear, or taste what is offered; and the source of real pleasure to us was a pretty yellow flower, which sometimes appeared under the algarob only, as if thankful to that tree for its kind shade, and anxious that the traveller should see, that nature smiled even in a desert.

But indeed, from a faint smile, nature once suddenly low'red her countenance, and changed it to a frown. We were in a spot mostly covered with algarobs, and observed that at some distance from us, the light green of that tree was replaced by a tint nearly black. I imagined that another species of vegetable beings had taken possession of the ground, and held it so completely, that no one of our nearer neighbours was suffered to pass the limits, which formed a straight line to the right and left of the road, and of so considerable an extent, that we could not see beyond it. We were anxious to reach it, and well it was for us, that neither we nor our beasts were made or dressed like green trees, as we might otherwise have been attacked by one of the most numerous hosts that ever took the field. Myriads of large locusts covered every branch, sprig, leaf, and fruit, so completely and in such close order of ranks, that not only a bare space could hardly be discovered on them,

but even the trunks of the trees and the ground beneath them were quartered upon by some, which, perhaps weaker or less fortunate than their fellow insects, were doomed to a humbler fare and station. These locusts covered a spot of several square miles, made no noise, and our driving with great speed through their ground and in the midst of them, did not in the least disturb them: yet the ride here was not without some disagreeable feelings, as the load of a single tree, transferred by imagination to one of us, was accompanied with the idea of slow destruction: they however allowed us to pass in safety; leaving us at liberty to make what moral deduction we thought fit from the scene. The bee, for its industrious and useful labours, gently gathers from the flower what can well be spared. The locust, in its preying and destructive course, strips the plant stark naked.

Soon after leaving Desaguadero we came in sight of the river Tunuyan, along which the road lies a considerable distance: it does not appear quite so considerable as the Tercero, but its course is in a very wide channel, which, if full, would render it magnificent. The verdure of many spots in it has a fine appearance, below the waste on each side. It is easily forded where the ground is firm, but quick sands often render its passage dangerous. On entering the territory of Mendoza, habitations rather increase in number, and appear a little more substantial: the grounds about them exhibit more agriculture, though with the same features of negligence and disorder which, nearly all along the road, had been so displeasing. Some mud fences, generally half decayed, enclose the grounds nearest to the houses, and within them are seen lays of lucern, a few fallows full of tall weeds, and still fewer fields sown with wheat, barley, and maize. A small vineyard generally forms bowers near the house, and, in two or three places, a row of poplars, a tree lately introduced here, ranges along some irrigating channel, breaking at intervals long travelled for, and not with graceful and pleasing effect, the sterility and sameness of the landscape. From San Luis, oxen and cows had almost entirely disappeared: some small herds of horses and of guanacos formed nearly all that could be observed moving on the plains. We had hardly seen a dozen of hogs yet, and these were of a very tall and coarse breed.

We at last entered the city of Mendoza, which covers a very large spot, owing to the extensive grounds which are attached to every house, and become larger as they recede from the public place and the centre of the town, the buildings of which consist almost entirely of ground floors only; so that here also, the appearance is that of a very large straggling village. Standing in a low and flat situation, with barren plains before it, and a still more barren ground beyond it, which forms a slope of ten or fifteen miles to the base of the first mountain of the Andes, Mendoza does not present that picturesque object, which might have been expected at the foot of such a lofty chain. We drove to the *fonda*, which is a coffee and eating house with a billiard room, kept in 1821, by a person remarkably civil and attentive to travellers; where the preparations for the journey to Chile detained us till late the next day, and where, on my return to Buenos-ayres, I staid about a fortnight.

I have been using the expressions of post houses and post masters, because, strictly speaking, they are such, and under posting licences and regulations from the governments of the states in which they are situated: but a traveller must not be led to expect that, on his arrival at every or any stage, the postmaster or any one else will step forward, and open the carriage door or hold his horse; ask him with the anxiety of competition what he wishes to have, and shew him into his house: nor that a chambermaid will be rung for, and come to eye him piercingly to his purse, in order that the supposed weight of it may determine the size of a room for his repose, and the depth of the down in which he is to sink. He will look in vain for a stately landlady at the bar, as the forerunner of a full larder; nor will the heightened complexion of a civil landlord shew the practice, whilst he makes the offer, of generous living. An enclosed shelter, a small dirty table, a broken chair, a hide or the ground to lie on, and a rent wall or decayed roof to breathe from, are what he may expect, and soon think luxuries. He will alight at this "traveller's room," which by the regulations ought to be kept always ready and in repair, and which is most usually detached from the post house. In the evening his baggage will be carried into it, and there, seldom will any other beings than large fleas, bugs,

and mosquitos, welcome his arrival. Near it a fire is lighted by the peons, for boiling water and drinking a few cups of hierba, whilst supper is preparing, which, where there is poultry, consists of a fowl cut and boiled into a soup, and roast beef; and where there is not, of beef only, first served up boiled and afterwards roasted: they are seldom tender or with much flavour: the meat is young, tastes of both beef and veal, and is nearly stripped of all its fat, which is previously taken off for making tallow. Gourds, a few of which are almost the only productions seen growing about the houses, and some maize or rice, are the vegetables usually boiled with the meat, and the whole is highly seasoned with red pepper. In many post houses bread is not found. The price for this supper and the room is three or four reals, or from one shilling and eightpence to two and threepence, for one traveller and his peon; and he will get his dinner when and where he can, whilst the horses are fetched from their pasture ground into the corral. As to breakfast, its consistence in this country does not often exceed some cups of infused hierba, and the smoke of a cigar. The traveller will often arrive in the evening and again start the next morning, without having seen any of the inhabitants of the house, who appear as little anxious to offer any thing, as to make a charge for it when it is given: but, although there is no officiousness, the disposition is rather that he should be accommodated; and in many places they ask so little, that it shews disinterestedness, because they well know, that the few Europeans who are crossing these plains will readily pay whatever is asked of them. Perhaps a message will come from the mistress of the house, to enquire if any hierba and sugar are to be *sold*, which is the usual way of asking for a small gift of them, and these are always most agreeable presents. At night, the door, if there be any, must be barricaded, and the fire arms in readiness, lest some Indians or other persons should be strolling for plunder.

The rate of posting, from Buenos-ayres to San Luis, for each riding and pack horse, is half a real, or near threepence halfpenny a league of three miles, and from thence to Mendoza, double that rate: a draught horse costs as much again. The traveller pays for the postilion's horse, but not for the man, unless he chuses to give him a real or two at every stage, which he will not ask, nor often give thanks

for. Most of the stages are of twelve, fifteen, and eighteen miles; others extend from eighteen to thirty six. In a carriage, for a long stage, relay horses are driven ahead; but on horseback, only for crossing the desert. The whole ride, from Buenos-ayres to Mendoza, costs very little more or less than twenty five dollars for each loaded or ridden horse. The price of a guide or peon of experience, as far as Chile, is from forty to fifty dollars.

A traveller on horseback, and without any other baggage than a change of linen in a small leather case, may with ease go over ninety, or with fatigue, a hundred and twenty, miles a day, from sunrise to sunset, and have a short siesta: but, with a load, much time is lost on the road in balancing and tying it up so as to stand the shake of a continued gallop, and also in getting the horses to start readily, as they will sometimes attempt to throw off their loads, and again to join the herd: they are rough for riding, and the exercise is trying. Saddles, and particularly bridles, made at Buenos-ayres, are more convenient than those of European manufacture for such a journey, and much attention to their state and fitness is required at every stage, as the peon will be of little assistance in this, and will let a traveller take care of himself as well as he can, whilst he and the postilion are often riding in advance and for several miles, without looking back, a circumstance which might render the consequences of an accident the more serious. I have already mentioned what delays and disappointments generally attend travelling in a carriage: they may be lessened by great precautions and cares, but not entirely avoided.

The choice of a tried and well known guide, and the precaution of being well accompanied, have become more and more necessary, as Indians, contending chiefs, and military stragglers, are often disturbing the provinces, and interrupting the communications. The post horses are also getting worse, as the herds have in many places been required and the best taken away for service, by both friend and foe. The road, therefore, was lately and on many accounts very unsafe. It is dangerous to travel at night on horseback, unless with a strong moonlight, owing to the holes in the ground: the jerk once caused by one of them was such as to make one of my

pistols jump out of its holster, and the bit come out of the horse's mouth: had I not been quite close to the other horses, mine would probably have run far away, with or without me, to join some grazing herd. Two Englishmen, who overtook us the next day, brought the pistol with them.

The horses are strong, uncommonly hardy, and better able to go a long stage in the dry western regions of the pampas than in the eastern, where they perspire much more abundantly, and are apt to flag sooner. They will carry their riders, and the pack horse his load of about two hundred pounds, at a good gallop, the distance of thirty six miles, requiring no more than a walk or a rest of ten minutes two or three times, for recruiting their breath, whilst the trunks are adjusting and the girth of the saddle made tight. The poor animals will however sometimes sink under the labour, and drop suddenly down dead or entirely knocked up. If it be supposed that, after such a ride, they will be well rubbed down and fed; that the travellers will be the subject of many enquiries and conversation between the inhabitants of the post house and the postilion, and that eating or drinking will take place, the case will usually be found the reverse: he unloads and unsaddles all the horses except his own; ties them up to some stake, water trickling down their bodies from heat; pulls his hat off to, and signors, his brother postilion who is to ride the next stage; goes into the kitchen shed; and, after the signores, signoras, and signoritas, who may be squatting round the fire, have been bowed to and complimented in the usual way, " at your service," with as much gravity and decorum as if he had been entering a drawing room, he prepares his cigar, which is food and drink to him, lights it, fastens the horses two or three together, and gallops all the way back again, whether the stage be eighteen or thirty six miles; but not at night, which he usually passes in the post house. The postilions are in general hired peons, or the sons of the postmasters, and men well known. Their horses seldom complete their work, without having their flanks torn an inch deep by the large spurs of this country, and bleeding copiously, from which they are immediately sent to recover on the plains.

Another mode of travelling here is in carts. Caravans of ten, twenty, or more covered carts of a large size, and on two very high wheels, carry produce and other trading commodities, between Buenos-ayres, San Luis, Mendoza, and San Juan, as also on the northwestern road towards Salta. The carts are drawn by six oxen, to the sides of which are others for relay or additional power, some being fastened behind for slaughter. The oxen are yoked two abreast; the first pair draw by a yoke beam made fast to the pole of the cart; the second, at a considerable distance from them, by a hide cord, tied to the end of the pole and the middle of their own beam; and the third, close to the second, by another cord which is fastened in the same manner, and passes through the yoke behind them. The great space which the whole team occupies, by which means the first four oxen are often enabled to pass over a muddy river before the others with the cart have got into it; the very considerable size of the wheels, which are eight feet high; the stout and rough workmanship of the whole vehicle; the long flexible poles, which project above thirty feet from the front of the cart and reach over the whole team, goading the foremost obliquely, and the two behind them vertically, by means of pieces of wood with sharp points hanging down from the pole; the arrangement of the march and the great order of it, have a singular and a picturesque appearance on these plains; and the very loud creaking of so many axle trees, which are never greased, makes a stunning noise and a rustic music, without which, it is said, the oxen will not so readily draw, and which well agrees with the scenery and the scene.

At night the caravan forms two rows, and a passage like a street is left between them: large fires are lighted and an ox killed: the best part of the meat is selected, and the rest left on the road: the birds and wild dogs next come in for their shares, and leave the carcase for the traveller to look at. These carts are from thirty two to thirty five days going from Buenos-ayres to Mendoza, if no unexpected delay occur, and are the safest conveyance, as they are under the command of trusty carriers, who ride and proceed very cautiously with them: they travel more or less by day or night, according to the season and the state of the moon. This conveyance, and as

much of the ox as the traveller chuses to eat, only costs six or eight dollars, or from twenty seven to thirty six shillings. But he may hire a whole cart, have it fitted up, go with the caravan, and, if a sportsman, meet with game in many places: this will naturally be much more than the usual fare; but yet considerably cheaper and more convenient to travellers, particularly to families, when expedition is not required. A stranger landing at Buenos-ayres will be laughed out of the choice of such a conveyance; but what may not be fit for Hyde Park or the Boulevards does very well for the pampas, and the only hardship endured may be reduced to that, by which a squeamish stomach is forced to appease hunger with meat nearly raw from an ox just killed, or a nervous head submitted to sound sleep, by the operation of a music so harsh as to have occasioned pain at home.

This manner of travelling might also very well suit a person intending to cross these plains for the purpose of scientific investigation: his instruments, the preservation of which is of so much importance, would not be exposed to so much risk in a cart as in a carriage, which is knocked about, rummaged by the peons, and emptied every night lest it should be plundered. If he should wish to leave the caravan for any excursion, the carriers would engage to keep horses always at his disposal: his effects would be safe while he is riding about, and the slow progress of the carts renders it easy to overtake them. But, to go to a considerable distance from the road, without being accompanied by a friend and some good peons, and without being well armed, would be very imprudent: the more fire arms the better, they are what the Indians dread most. Travellers passing with rapidity over these plains do not run the same risks, as might attend occasional delays and excursions, and the temptation of a good opportunity for plunder.

The Plate No. VII. represents a caravan of carts, which is going round about the road for the purpose of avoiding a bog. In the eastern districts, after heavy rains, carts and oxen will sometimes stick so fast in a muddy river or swamp, that some of the beasts yoked to the pole perish, after much unmerciful goading.

Another conveyance on this road is by mules, which are chiefly destined for

Sketched by P. S. on Stone by A. Aglio

Printed by Rowney & Forster

CARTS *conveying Goods & Paſsengers acroſs the* PAMPAS.

Drawn on Stone by A. Aglio from a Sketch.

Printed by C. Motte & Co.

MULETEERS.

the carriage of wine, dried fruits, with some other productions from Mendoza, and the return to it of Paraguay hierba, empty casks, and what else may offer: it is usually by a few days more expeditious than the carts. At night, or at midday if hot, the loads are taken off, and with them a circle is made on the ground with much regularity, each burthen and its apparatus by itself: within the ring a fire is lighted for cooking, and the muleteers with their peons sit, eat, and smoke round it, until, wrapping themselves up in their ponchos, they lie down on the ground to sleep. If a troop of mules and one of carts should have stopped near each other at dusk, the sight of them is truly characteristic and pleasing.

The Plate No. VIII. exhibits a spot where the muleteers have halted: the mules are gone to graze: the horses kept in the ring are for the purpose of riding out and fetching back the mules, which are either watched by peons, or, when the nature of the country admits of it, left as it were under the charge of a horse with a bell, from which they will seldom separate. The men are passing to one another a wooden spit with a piece of roasted beef, from which each cuts a bit, and another is seen roasting at the fire. Mule carriage in Chile, which is, with very few exceptions, the only land conveyance for any kind of goods in that country, offers the same arrangement; but the scene there is rendered more picturesque, by the hills or mountains always in sight.

Owing to the disturbed state of the country, and to the decline of its inland trade, we met with very few travellers, or troops of carriers: the number of the former did not exceed ten or twelve, several of whom were expresses and postmen; and unless some change, very much for the better, takes place in these provinces, the intercourse may probably become still less, rather because of the want of peace and security, than of objects for trade, as they possess valuable and most useful productions, to exchange for foreign commodities, and to promote the exercise of that first branch of human industry, agriculture.

The inhabitants who are so thinly scattered on this road, offer little or no variety of habits, but some of disposition; and although it might have been expected, that

the farther we went from the eastern coast, the worse would have been found their appearance and condition, the reverse was the case: for, after we had left the territories of Buenos-ayres and Santa Fe, they began to assume more pleasing features, and the nearer we approached to Mendoza, the greater was the display of a rational and sensible expression of countenance. Of the little time which is left for labour, after eating, drinking matés, smoking, and sleeping have consumed the greatest portion of the four and twenty hours, women make a better use than men, and are seen cooking, spinning, and weaving. Men, when at all in motion beyond a few steps, move on horseback over the plains, and it is then only that haste is made. Many of them and most of the women are without shoes and stockings, yet their dress would be sufficient to give them a good appearance, if it were not for an uncleanliness which is truly offensive. Their children pass their infancy in dirt and slovenly idleness, and the sight of a family is frequently such, as to establish a strong contrast between the human and animal creation, unfavourable to the former. The retired life of these people in lonely habitations, and the little security of it, naturally prevent the access of much cheerfulness, and the only exhibition which I witnessed on the pampas of any of their favourite amusements, was once that of a small party, in which an individual was singing with an accompaniment of the guitar, and the others listening: their appearance differs much from that of the Chilenos, which is cheerful and lively.

A boy, very soon after his birth, is often held on horseback, entirely naked, by his father; and when able to hold himself and to ride alone, he assists in looking after the herds, or exercises himself in horsemanship, and in throwing the lazo; and whilst in Europe, the educating schoolboy, not seldom nursed with vanity rather than modesty, self gratification than self denial, and a consciousness of importance rather than of insignificance, appears frequently to grow to any shape but manhood and gentlemanliness, in some of the young gentlemen's academies spread over several parts of it, the ignorant American boy of the pampas, if belonging to some postmaster of property, seems not only to acquire all this without being taught in similar

institutions, but to exhibit it with less childishness: with his little poncho on, his huge spurs, and a lazo fitting his age in the hand, he would more than once, at some post house, ride past us, swelled with pride, and affecting to be without the least wish to look at some of the very few foreign travellers on this road, content with the hope that we were observing him: and, indeed, it is not a little extraordinary, that whilst grown up and civilized man and woman must with us often do this also, to the end that their growing fashion may not be arraigned; here, the untaught boy appears to know as well as ourselves, how to command his looks and turn them forcibly away, lest his growing manhood should be impeached for its curiosity.

We read in Humboldt's of the vexation which was often caused in the missionary settlements of the Oronoko, by answers indiscriminately given of "yes Padre" and "no Padre," less to satisfy enquiries than to get rid of them. Here, and particularly in Chile, with the peons, who in all countries often possess a good share of the store of practical knowledge on many subjects, "*quien sabe,*" who knows! is very often the first answer to a question, which being again put with some different turn of expression in order to draw out if possible a satisfactory reply, "quien sabe" is repeated somewhat impatiently; and lastly, "quien sabe, signor!" comes out with so much ill grace, that the subject is given up as desperate. Nor does it always fare better with the master; and I have already mentioned, how some prejudice is frequently apt to exist against the accuracy of informations received. These countries are not Scotland, where the very ploughman will often not only tell what a stranger wants to know, but even lead him to the knowledge of what he might otherwise have not thought of acquiring, and this with no less civility than clearness. Again, the time for enquiry here is short; and if a traveller were to meet his hours of business about midway between a fashionable and a laborious life in some parts of Europe, and be ready for it between ten and eleven in the morning, soon afterwards, almost every place would be found shut up, and no one accessible. Dinner begins, and a long siesta follows. At five or six, according to seasons, the coolness of the breeze from the Andes has the same effect, which rains are described to

have on what lies with torpid life under the sands of equatorial regions; sleep is at last again and for a few hours shaken off, and rational animation restored.

What an extraordinary contrast is offered, between the towns of this country, and some of the largest capitals of Europe! There, a traveller may have as much of life in a few hours as here in years. He may there walk the streets, with a verse of Shakspeare in Hamlet present to his mind or on a slip of paper. At every step, a public caterer is contriving to make his fellow creatures sensible that, for him and them, "to be," is the question; that unless haste be made, it will be too late, and that not only his viands and spirits will get weak and cold, but likewise the stomach for which they are intended. All that can please the palate is not only exposed in the most ingenious and tempting shapes, but held to the very lips of him, who otherwise would not have thought of them. One after the other, of those whose office is to supply life with its wants, is incessantly labouring to convince man, that he only *is*, by eating, drinking, and dressing; by continual change and motion. A step farther and a different, but no less active, scene is observed.——What are they doing? Pounding and mixing up the corrective drawbacks from the pleasure of indulgence. "To be, or not to be: that is the question." The traveller yields to the impressive warning, and goes in for the purpose of securing existence against the other alternative. In a short space of time, he has seen all the attributes of the different periods of life; he has passed through the reminiscence of the various scenes of his own from its infancy, or even, he has acted them all over again. Happy now with the thought that he has secured many more to come, a noise somewhat strange excites his curiosity; he looks into the place from whence it proceeds, and observes a number of men employed in fixing thousands of fine nails over some large chests; and that so many are the beautiful and fantastic ornaments arising under the hammer, that, however various the tastes of mankind, each must be gratified: if travelling trunks, to pass them by, without an exchange of the old for a new, requires too much self-denial.——But what are they? Coffins. "Not to be," is here the question; and the master, like the ferryman Charon by the side of his bark, drily asks the traveller

which of them he likes best, adding, that the sooner it is out of his way the better. In these countries, no such warnings are held out to him of the shortness of existence, and of the value of time: nothing is contrived to induce him to do any thing, or to move one step before the other. The scenes and their effect are indeed so much the reverse, that they would rather gradually lead him to believe, that he has already passed into eternal life, and that days, being no longer of any consequence, need no casting up.

Some remains of European habits prevented us, however, from trusting to an impression, by which our passage next year over the Andes would have appeared to us just as early as if effected this, and we were urging the muleteers and our peons to a speedy departure. Winter had already sent its harbingers to the mountains, over which two snow storms had burst, and which a third might render impassable.

CHAPTER X.

MENDOZA AND GOITRES.

Collect at ev'ning what the day brought forth,
Compress the sum into its solid worth,
And if it weigh th' importance of a fly,
The scales are false, or algebra a lie.

COWPER ON CONVERSATION.

THE city of Mendoza covers a considerable space, owing to the enclosed grounds which are attached to most houses. The inhabited and cultivated lands extend more particularly to the southward, towards the river of the same name, and the Tunuyan, the distance of about twenty miles, for the easier benefit of irrigation: and very nearly the whole of the population of this state is concentrated on this spot. The town stands too low for any view of the flat country near it. To the west is the chain of the Andes, of which the extensive longitudinal mountain already noticed is almost the only part seen, as it is of sufficient elevation to interfere with the view of the higher cordillera, except far to the southwest, where being divided, the opening exhibits some lofty summits covered with snow, which form a fine contrast with the gloomy brown tint of the arid foreground, and contribute to vary the prospect of the public walk, called *Tajamar*, which is confined to the west, and no part of which has the character of alpine scenery. In full day, the accidents of light do not lend to any landscape generally, and much less to this in particular, much variety of effect; and towards the close of it, at the time when nature so often gratifies her admirers with the most splendid dress, when the shifting tints of a setting sun become more and more fiery and magnificent, as their total disappearance is drawing

nearer, at this time, the lofty western masses, behind which the sun so early sets here, become dull and confused; whilst to the east or any other side, there is not an object which can arrest the departing rays, and reflect their splendour: darkness comes gradually on, without any pleasing and picturesque change in the scene.

Two torrents, or very small rivers, the one called *Cueva*, the other *Tupungata*, produced by the snow which lies the whole year on the most elevated parts of the cordillera, and in winter covers also the lower mountains, lose their names at their confluent, and take that of Mendoza: this river then flows to the eastward, and, at its entrance into the vale or bowl of Uspallata, about six miles from the hamlet of that name, takes a sharp turn and a southerly course; it passes out of the bowl through a very deep and narrow cut, and, after a run of above fifty miles in that direction, comes out of the Andes at the opening seen from Mendoza, and winds back near it, but not to it, from the southwest; supplying by means of large courses opened for the purpose, all the wants of this district, for the irrigation of its agriculture, and the use of its inhabitants: its course, with that of the Tunuyan, is shewn in the map, and I have been informed, that the valley or basin through which they leave the Andes is a fine country. That way chiefly lie the haciendas or estates of the Mendozines, and to the south of the Tunuyan are Indian settlements. Thus to describe the origin and course of rivers, which are not much more than mountain torrents, may appear superfluous, but these, for thousands of miles to the northward along the Andes, are proud Amazons; and at some future period, the inhabitants of this country may enjoy the agreeable sight, of some Europeans arriving here in steam vessels, after a navigation up the Colorado and Tunuyan, to purchase their hides, tallow, and other productions; perhaps to have another trial at the silver mines, and to explore, by means of these rivers, countries which may well prove worth the enterprise.

I need not mention, that what is not cultivated and irrigated here, is yet more barren and dreary than any tract hitherto seen on the road, as the dryness of the atmosphere is still greater, and the small woods, if having at any time deserved that

name, have been in a great degree destroyed for fuel and other purposes. Fragments of rocks are seen along the foot of the mountain; but here, the whitish soil continues to be of that fine and friable nature which forms so characteristic a feature across the pampas, and appears mostly unmixed with any stones. Sunshine being seldom interrupted, the middle of the day, during nearly the whole year, is hot here, and in summer intensely so. From observations, of the general results of which I have been informed, it appears that the mean heat, in the latter season and in the shade, at two o'clock, P. M., is about 90° of Far. or a little above: the nights are comparatively very cool, and in winter they are cold and frosty.

The grounds adjoining the houses are enclosed with mud walls, and the roads or streets through them do not offer any pleasing object: there is, in what is seen from them, a want of arrangement and neatness which renders it unsightly: the main irrigating channels which run along them, and might tend to their ornament, have the contrary effect, and in many places the water is suffered to overflow; or what at small intervals comes out of the private grounds makes a puddle across the traveller's way: but all these water courses, which are not agreeable to him, are channels of abundance. The cattle of this district is large, its meat good, and all vegetable productions are here of a good quality and quick growth. The principal pasture and fodder continue to be lucern grass, which is cut four times a year, and every time nearly all in blossom or seed, a circumstance which, with the substance of its stem, renders it so excellent a food for cattle: it is brought every morning and evening to the most inhabited parts of the town for the beasts kept in it: a load of it, which is nearly as much as a horse or mule can carry, costs about two shillings sterling, but becomes dearer during the winter months, when barley and chaff are partly substituted for it. Wheat, barley, maize, kidney beans, gourds, melons and water melons, potatoes, onions, cabbages, and other productions, are obtained here in abundance without manure. The vine is here cultivated, or rather planted, receiving no other care than that of irrigation, and bearing very good red and white grapes, the bunches of which are large and full: the white are usually dried up in

the sun, and the red made into wine or brandy, giving rise to a branch of trade comparatively considerable, and chiefly with Buenos-ayres; the best of this wine does not yet deserve much praise, but some inhabitants have turned their attention to its improvement, and not without success. We shall learn in Chile, how the excellent grapes of these countries are converted into bad wines. Figs and peaches are also dried here, and sent out for sale: good apples are produced, and orange, lemon, olive, with other fruit trees, are seen in the enclosed grounds.

If we limit the town to the public place, the quadras, and the regular streets, it will then be small, and its suburbs of very considerable extent: the buildings are chiefly of adobes, none of which make any particular appearance: the dwelling houses consist of a distribution of apartments on a ground floor: many are on a large scale, and among these a few are well furnished, with Cordovine or European carpets, English or other furniture, looking glasses, and musical instruments. The necessaries of life are very cheap in this town, and travellers desirous of residing some time in it, may have from some respectable family part of a house with large rooms, at a trifling expence; or, for a very short stay, they may be accommodated at the fonda. Letters of introduction to some of the chief inhabitants may be procured at Buenos-ayres; and if their object be that of scientific research, it should be well made known, because such a purpose, being new and little understood in this part of the world, might be misconstrued.

In some of the latest accounts published of the town and territory of Mendoza, the whole population is stated at six thousand souls; but one of the principal inhabitants of it told me that thirty thousand was its amount, and though perhaps a little overrated, yet I cannot think it far from the real number. Many families among the poorer classes of Chile continue to emigrate, and to come over the Andes to Mendoza, where they are encouraged to settle by grants of lands and of civil rights, which are denied them in their own country. The Mendozines are more farmers and graziers than manufacturers: they exchange the produce of their lands and of their cattle for fabricated goods, which they receive from Buenos-ayres, Cordova, and the southern

Indians: some of the silk and cotton goods, which come directly from China and Bengal to Chile, are also brought over the mountains to this place. But its transit and carrying trade has considerably decreased, since a direct intercourse with Valparayso has been opened round cape Horn, and it is the more likely to cease almost entirely, as the safety of the road cannot be relied on; for, whilst troops of mules or carts are loading, with a prospect of a free passage, a military chief with a handful of followers, or a few Indians, will suddenly start up and intercept the communications. A branch of trade still existing between Mendoza and Chile, is that of herb of Paraguay, which, when it can be had, is sent over the Andes to Santiago. Soap of a tolerably good quality is made in this town, some of which is sent out for sale: the alkali for it is obtained by burning, in nearly the same manner as sea weeds are burnt for making kelp in Europe, green boughs which produce it abundantly. The transactions in unwrought gold and silver are now very inconsiderable.

The government of this state is, in some of its forms, very popular, and during some stay here at another period, a small want of money for a public exigency, caused a meeting of all the divisions of the community for its grant. But it has not been yet put to any great test, and from local and other circumstances, perhaps also from good sense and disposition, those who possess most influence and power, have neither inducement nor inclination to exert them for their own individual advantage and gratification, as is but too evidently done in many of these independent states. In so remote a situation, with lands sufficient, not only for their own people, but also for the encouragement of foreign settlers, they have not yet had to contend with clashing interests at home, or with jealous and hostile neighbours abroad: all their lands are not granted away in immense estates, as is so much the case in a great part of South America. Nevertheless, I do not think that they place much reliance on the fitness of the present political arrangements for this part of the southern continent; and here, as elsewhere in it, a few families possess the principal part of the wealth and trade: several others are found of a superior class, but not opulent; the younger branches of stocks, whose chief substance is gone to the eldest, or reduced

by other causes to small circumstances. Among the rest of the population many are seen, who by means of their industry have acquired some little property, and none appear indigent, almost all being possessed of portions of land more or less considerable, which, with a moderate share of labour, provide for their wants. Their dress is plain but good. The men are rather above than under a common stature; the women short, and both stout. The higher classes are more genteel by their manners than by their figure, particularly the women, few of whom are favoured with much beauty of countenance or elegance of shape. Here also, in several houses, is seen some display of splendour, by the spaciousness of the rooms destined for evening parties, their lights and furniture. A taste for music prevails, but not the means of making much progress in the art, and the skill of the principal inhabitants is confined to some easy pieces on the piano-forte or guitar, and the accompaniment of the voice. A few private libraries are found, consisting of select works, but the stock of information possessed is very small, and the instances of extraordinary ignorance, which sometimes burst upon conversation, occasion to a stranger the more surprise, as they form a striking contrast with the appearance and polished manners of those from whom they proceed.

The Mendozines are unaffected, well disposed, and hospitable. Notwithstanding their want of education and information, they exhibit, even among the poorer classes, the possession of a share of good sense, of sound judgment, and of manly manners, which are seldom so evidently shown in this part of the world, and render their general deportment very pleasing to a stranger. By the want of education is here meant what is commonly conveyed by such an expression; because, if more literally understood, they must receive those qualifications from their parents or their small schools, by an education which promotes a right course and use of their intellectual faculties, as far as they extend; although it does not furnish them with that kind of knowledge, which, being often more aimed at in Europe than those advantages, takes precedence of them, and frequently supersedes them altogether.

Four lines of Cowper have hurled mankind down to a very low state in the

creation. If the compressed product of our daily conversation be so light or so bad, as not to yield the weight even of a fly in worth, what are we yet but a mass of matter, only shaped to feed and to sleep! It is not a little surprising, that no attempt should yet have been made to drive the poet from his position: the defiance thrown out requires not a great power, and to rescue us from the disgrace of its operation, would deserve a greater triumph than the gain of many battles. Scales adjusted by justice itself, set in every dwelling, from the palace to the cottage, in full view, on every table, wherever there is social intercourse and feasting, would decide the contest; not like the sword hanging over the head of Damocles, by frightening hungry stomachs from the banquet, but by improving the mental feast of the guests, and reminding them of what is required for success. If there should be felt the want of a subject from which to extract solid worth, an appeal made for its production, to those whose example is more than law, would not be made in vain, and the most skilful mathematicians would watch over the integrity of their science.

The Mendozines are excessively fond of dancing: they have or know of little else to do in the evening, and as soon as the heat of the day and the siesta are over, social intercourse begins, of which dancing, intermixed with a little music, is the principal amusement, and people of all ages join in it. Perhaps a grave game player will here exclaim, "what a childish people!" But a judgment cannot be pronounced merely from the difference of attitudes, which human bodies exhibit at the card or other gaming tables, and in the ball room: if the one, whilst dealing, or playing his part, pretends, that notwithstanding the unfavourable situation and contraction of his person, yet enough of it is left at liberty for the display of much gracefulness and elegance, the other lays a claim to a considerable share of the same accomplishments, and to the advantage of exhibiting them in full length: if the former plead that he can assume more dignity of countenance, the other answers that if he do not possess so many means to overawe, he has more to please. But let us now take Cowper's scales. In the ball room we find that much is not said, but that an effort towards some good and agreeable subject of conversation does not allow the mind to

be at rest: that many steps made to please, and some compliments bestowed, render numbers of partners contented with each other, and that if they occasionally be out of time and tune, the disagreement is short, and without self blame: the fashionable but childish and self lowering propensity to mock, has not yet passed from Europe to this spot; and if any unkind observations escape, there appears no disposition to indulge in them at the expence of others: cheerfulness and animation take gradually the place of gloom and indolence; and much previous stiffness of mind and body is changed into gracious feelings, and physical flexibility. At the gaming table we only hear some, and always the same, words and combinations, which any human head can learn and make by such constant practice: and if the stake be at all important, the disposition of the players towards others and themselves greatly depends on the number of stakes lost or won. But at the high gaming board, the most shocking scenes are exhibited: here the worst passions are presiding, and the greater the loss and irritation, or the more complete the ruin and despair of one, the higher the gratification of another. Were the gold obtained by these combinations all gain, they would show Cowper in fault; but since there is as much lost as won, no solid worth can be compressed from them. If, however, in neither case, by the test of conversation alone, can the fly meet the importance of its weight, let us look for some other results, and also place them in the scales. The dance is a most wholesome exercise, which makes the blood freely circulate, and when perfectly modest, is as innocent an amusement as it is cheerful and genial to our nature, whose physical construction was not intended for a constant display of stately attitudes. The gaming table constrains the body, obstructs circulation, and often leads to the loss of health. The player becomes thin whilst the dancer grows fat, and thus many pounds of solid worth, lost by the former, are found won by the latter.

The principal performance in the ball room, at Buenos-ayres, here, and in Chile, is a kind of English country dance, to the slow tune of the waltz, so that the amusement is not fatiguing, and any one able to stand on his legs can join in it. The figures, the attitudes, and the slowness of the measure, occasion a very graceful

display of this exercise, chiefly from women, as men are less flexible, and an uncommon degree of pliancy is required: it is performed with much decorum, as are other parts of social entertainments here; and whilst it exhibits to a stranger a very pleasing ensemble, it does not allow of that vain and forward individual exhibition, which many dances in Europe not only occasion but render necessary: nor can the feet be kicked into intricate and wonderful steps, as these are neither required nor indeed practicable.

But whilst we are indulging so long in looking at an assemblage of well dressed people, with countenances animated by pleasure, uniting and parting again with gentle movements, bending and figuring to the tune with flexibility and grace, and slowly gliding along to its measure, without hop or contortion, we are reminded, that no pleasure can be enjoyed without some pain usually tripping also close upon the heels of it; and we have now before us a change of scene and a painful exhibition. The greatest number of the inhabitants of this state are afflicted with that unseemly and injurious disorder, the goitre, which prevails in so many parts of the world, and for the prevention of which little progress seems to have hitherto been made: yet the disease is such, as may justify an appeal to governments as well as to individuals, for farther and if possible more effectual efforts, for the discovery of its cause, and for the means gradually to remove it. It cannot be supposed, that Providence should have destined so many countries of the earth permanently to produce this evil, and the numerous inhabitants compelled to reside in them, to be for ever subject to it: mental or bodily faculties are generally more or less affected by it, and those who have been in the vallies of Swisserland and Savoy know, how often they are lost by this severe visitation, which, however, can only be viewed as one of the very many imperfections which meet us at every step, and are intended to draw forth our labours and our exertions for their removal.

Both men and women, and it is said four fifths of the population of Mendoza, are seen either with the distinct swelling of the thyroid gland, or with an unnatural enlargement of the neck: the head also seems bloated, moves stiffly and heavily on the shoulders, and gives to the inhabitants the same appearance as that of many men

in the widest and lowest vallies of the Swiss Canton of Valais, who, though not exhibiting the goitre so distinctly as women, yet have necks and heads unusually and unfitly large; exclusively of the unfortunate beings called cretins.

I hope that, on this subject, an extension of indulgence will be granted to me, if I venture, without any scientific knowledge, to dwell a little on it, and to increase the stock of conjectures which have been made on its origin, by offering some more to those whose attention and abilities may be engaged with it; and by submitting to their decision, now that it seems ascertained that snow or ice waters cannot be the cause of the swelling, whether or not, it can be owing, both and at the same time to the water which is inhaled by breathing and to that which is drunk? If, when the quality of that water is of such a nature as to engender the goitre in any spot, drinking it with the atmosphere, in a manner of speaking, and with a cup, cannot tend to the same effect with a twofold agency? and lastly, in case it were found induced by some noxious impurities and qualities of the waters, where the goitre prevails, if those waters, when stagnant in low and marshy grounds, would not more rapidly contribute to its production and increase, by being quickly evaporated and inhaled, than by being drunk, when it is considered that such stagnant waters are so often found, if not generally so, where neck and head swellings, fevers, and other diseases are observed, whilst the variety of springs, which are used for drinking by the inhabitants of those spots, must necessarily offer much difference in their qualities, and their noxious impurities be more or less modified?

There are many very small swampy vallies in Swisserland, where nearly all the female inhabitants have the goitre, and in some one of which the draining and cultivation of the whole valley, and the establishment of filtering basins, might perhaps be effected without much expence, as an experiment which would tend in the space of some years to decide, whether the hope of removing the cause of this disease can be entertained or not. Water which falls or overflows on a soil opened, warmed and sweetened, by cultivation and the sun, must, I should suppose, be exhaled in a very different state from that in which it is, when that soil is closed and already saturated with it, and leaves such water on the surface, not only with all its original

impurities, but also with the additional noxious qualities which it may receive whilst in a stagnant state. Such an experiment might likewise tend to the removal of fevers and other disorders; and when it is considered also, that an inducement of this kind to a more complete cultivation of many large vallies, now with extensive marshy pasture grounds, would contribute to a practical demonstration, that by cultivated artificial meadows, two or three times more or better food could be obtained from those lands, the trial may be found worth the expence. If successful, it would change those spots, less expected there than almost any where else in the world, into fine fields, and these would exhibit a more generally healthy race, instead of so many bloated or emaciated inhabitants, bearing necks sometimes of such a size, as greatly to impair both their physical and mental faculties. The cattle, which are likewise strongly affected by this unfortunate disorder, would be improved by its suppression, and the benefit would gradually extend to some of the many other countries where it prevails.

The information and extracts which end this chapter tend to show, and more or less to support, the opinion entertained by many, that noxious exhalations may be the principal cause of the goitre. The change of water, or the use of the same in a purer state, has undoubtedly been found a preventive against the disease, or a cure for it: at Mendoza and at Santiago filtering stones are used, and no cold water is drunk at the hotel in the latter place, without having first been filtered: but I would ask, if the effect of such better or purer water may not be due, as much to a qualification and correction of the consequences of a bad atmosphere, as to a removal of the cause by which the disorder is occasioned? I shall conclude with the hope, that a deformity, which so frequently occasions pain and disgust, may be subdued at last. If so, and by the cultivation of the low marshy lands which, in many mountainous countries, nature seems rather to have intended for gardens, a twofold good will be effected. The medical men who may be engaged with this interesting subject, to whose knowledge and abilities it must be left, and the governments which may be pleased to assist their labours, will remember that Cicero said "*neque enim ulla alia re, homines propius ad Deos accedunt, quam salutem hominibus dando.*"

GOITRES.

WHILST the quotation from Cicero must be left to the just praise of those scientific men, who may now be successfully engaged in effecting the cure or the prevention of this severe disease and deformity, I have to provide against the effect of the blame to which I may be exposed, by thus introducing the subject so much at length in this work; and I rely for support on all those who may now be afflicted with the goitre, neck or head swelling, in the world; both trusting and fearing, that I may have the protection of some millions of fellow creatures.

Mendoza is perhaps one of the spots, if not the spot itself, where the largest proportion of inhabitants is found to labour under the swelling of the thyroid gland, or an unnatural enlargement of the neck and head. A medical gentleman from the United States, who had practised several years both at Mendoza and at San Juan, told me, that he was convinced that the disease was not owing to snow water: that at the latter place, although the water used by the inhabitants comes immediately down from the snow, he had not seen goitres; whilst at Mendoza, where they are so numerous, the river runs near a hundred and fifty miles before its water reaches it. But the opinion that goitres were owing to such a cause appears no longer entertained; they do not exist on the coast of Labrador, nor in Lapland, nor in other northern countries where snow and ice waters are constantly drunk; whilst they are extensively found in many, in which there is neither snow nor ice whatever.

There is probably very little resemblance of situation, climate, and vegetation, between this spot and those of Europe where the goitre most prevails. Around it, except on its western side, are immense plains, with an atmosphere of excessive dryness; and if the river wash any plants or their roots during its long course, judging from what I have seen of it, they must be very few. Yet Mendoza may be exposed to the same effects from noxious vapours, as contracted and marshy vallies. The road map annexed to this work shews the large *lagunas*, rather marshes than lakes, which are near it, and which in summer are almost dried up: to their exhalations must be added those from the southward, caused by extensive artificial irrigation, and by what other swamps there may be between the Mendoza and Tunuyan rivers, or farther in that direction. Evaporation must be very quickly performed under such a sun and climate; and however open the situation of this spot, yet, from the great height of the Andes, the wind does not probably disperse the vapours here so often and so effectually as it does at a greater distance from them. When the situation of Mendoza, and the extraordinary prevalence of the disease here, are considered, this may perhaps be thought an instance strongly tending to support the conjecture, that goitres may be chiefly owing to an atmospheric influence; and the medical Doctor whom I have mentioned, was of opinion, that it was here entirely caused by it.

Salta and Santiago del Estero are, like Mendoza, surrounded with marshes, under a still warmer sun and drier atmosphere, and the following extracts will shew that goitres are common there.

The situation of Santiago de Chile is very open, and a day seldom passes without a breeze towards the evening. Its climate is no less fine and dry than that of Mendoza: some small swampy spots are, I should think, too far distant from it, to have any effect on its atmosphere; but irrigation is very extensive and copious around the city, and particularly on that side of it from which the wind usually blows. The inhabitants of Santiago, however, do not exhibit the same enlargement of the neck and head as the Mendozines: the goitre is with them more distinctly seen, and it is neither so common nor, except perhaps in a few cases, so protuberant as at Mendoza. I observed it in women inhabiting cottages within a few leagues of Santiago, and in the midst of irrigated grounds, but nowhere else in Chile during a journey of above a thousand miles, along both the sea shore and the foot of the Andes. There are not in these tracts either moist lands, marshes, or artificial irrigation sufficient, to have any particular influence on the atmosphere. I am not aware of any other precaution against the goitre in these towns than filtered water; and I heard at Santiago of only one case where the amputation of it was performed.

The goitre prevails in many countries whose lands are artificially and extensively irrigated; in South America; in Piedmont, Lombardy, and all the great valley between the Alps and the Apennines; in Bengal and others: and an additional evidence for supposing that the atmosphere breathed, more than the water drunk, may be the cause of the disease, seems to be, that it generally is avoided by only removing to a greater elevation, in spots where the quality of the water is the same.

In the Appendix to Mr. Helms's Travels, we find the following account of the women of Salta, the situation of which has been shown in the itineraries, and where, in and after the winter, the environs become such a vast morass, that those who go there to hold the fair, can with difficulty find a spot on which to fix their tents:—"It is not improbable but to these marshy exhalations may be attri- "buted the hideous goitres with which the female sex is here so frequently afflicted. As beautiful as the women are, and distinguished

" for their fine complexions and particularly for the fine growth of their hair, no sooner have they attained their twenty fifth year, than " their necks progressively increase in size, till they at length attain a most disgusting protuberance, and in order to conceal this deformity " these poor women envelop themselves up to the chin in a thick handkerchief."

Father Dobrizhoffer, the Jesuit, accidentally mentions, in his account of the Apibones of Paraguay, that wens and fevers prevailed in Santiago del Estero in Tucuman, before its decay, owing to inundations, but takes no further notice of the first disease. I have not been able to learn in what part of Paraguay it exists; but a Paraguine gentleman, whom I have seen in Chile, had a very considerable goitre. The north of Paraguay is surrounded with inundated lands.

In Brazil, where there is not any snow, goitres also prevail extensively. Mr. Maw, when on his way from the port of Santos to St. Paul, between the latitude of 23o and 24o S. mentions them as follows:—" Some of them (Indians and negroes) I noticed with " swellings in the neck, though very different from those I have observed in Derbyshire and other mountainous countries. In the case " of these Indians not only there appeared that protuberance from the glands commonly called a wen, but lumps of from an inch to " three inches in diameter, hung from it in almost botryoidal form." In Luccock's Notes on Brazil, page 478, we find the following account:—" Through the whole district of the mines, (Minas Geraes,) that dreadful disorder, the goitre, or, as it is called here, the " papas, prevails greatly, afflicting people of all classes and all colours; even the cattle do not escape. I have endeavoured to trace it to " the coldness of the waters, to the mineral and vegetable impregnations which they contain, and am satisfied with neither solution. " On a very large estate, near Sabará, it prevailed so much, both among the family and the cattle, that the owner was induced to dispose " of the place. The purchaser observing that one side of it was bounded by a river, which flowed through thick native forests, and " attributing the evil, as is generally done, to the water, he caused a broad trench to be dug across the ground, so as to compel the " cattle to seek their beverage from some springs, which he opened and nurtured, and ordered the same spring water to be used in his " house. No goitre has appeared upon the estate since, though he has been in possession of it several years." Mr. Luccock notices another case, that of a man who cured himself by drinking sea water; and he thinks the goitre may be owing to the want of salt. It would have been desirable to know, if the trench above mentioned, which must have been of considerable depth, did also contribute or not to drain wet or flooded lands.

From some additional information concerning the goitre in Brazil, whose name, *papa*, is of Indian origin, it appears that it prevails most extensively in that part of South America, and amongst all descriptions of inhabitants. It is remarkable, that *papa* is likewise the original Indian name for the same disease in Peru. Garcillasso de la Vega states, that Tupac, Inca of Peru, having subdued the province of Cassamarquilla, " proceeded to another people called *Papamarca*, from the *papas*, which are great bunches " that hang from their throats."

In the appendix to Dr. Barton's Memoir on Goitres, authorities are quoted which show that it prevails in the empire of Mexico, in many spots from Guatemala to Santa Fe, where it is called *cotos;* in Nueva Gallicia *guëguëchos*. Mr. De Pauw also takes notice of the goitre as a disease of the Indians inhabiting the foot of the cordillera, and called by them *coto*.

Doctor Barton, quoted above, medical professor in the University of Pennsylvania, published in the year 1800, his very instructive memoir on the subject of the goitre, as it prevails in North America, particularly in the United States; and we learn from him,

That it is common with the Indians as with inhabitants of European origin.

That men, women, and children are subject to it, but more particularly the female sex.

That, in some states, both sheep and horned cattle are sometimes affected with large swellings of their necks.

That the disease has an extensive range in North America, chiefly in low and marshy spots; and that in Lower Canada, it is particularly to be found in the marshy lands between St. John's and Montreal.

That it is not always confined to vallies and mountainous countries, but also extensively prevails in some high and level plains of North America; and that it is observed both where there are lakes or not any.

Dr. Barton does not admit the supposition, that the goitre is owing to calcareous waters, as it is found in some parts of the United States, where there is not any limestone.

The Doctor states that where it prevails, there are generally also found intermittent and remittent fevers, and dysenteries; and is of opinion that, like these, the goitre is caused by a *miasm*. The memoir ends as follows:—" Upon the whole, the farther I proceed " in this enquiry, the more I am inclined to believe, that the principal remote cause of goitre is a *miasm* of the same species as that " which produces intermittent and remittent fevers, dysenteries, and similar complaints. I pretend not to determine, what is the precise " nature of that miasm. This and many other points which I have touched upon, in the preceding pages, I submit, for the present at " least, to the judgment of those who have leisure, and more inclination than myself to woo the fairy favours of conjectural science."

In many parts of Asia and of its islands, the goitre has been very extensively found to afflict the inhabitants, as appears by the following extracts, and first,

From Captain Turner's Embassy to Tibet, published in 1800, p. 86–88.

"The unsightly tumour to which I alluded," states Captain Turner, "known in Bengal by the names of gheig and aubi, and "which in Bootan is called hà or kebà, the neck swelling, forms itself immediately below the chin, extending from ear to ear, and grows "sometimes to such an enormous size, as to hang from the throat down upon the breast. The same disorder is known to prevail in many "parts of Europe; in Italy near the Alps; Stiria, Carinthia, the Ukraine, and the Tyrol; it is distinguished by the name of goiter. It "is particularly observable among the inhabitants of the hills of Bootan, immediately bordering upon Bengal, and in the tract of low "country, watered by the rivers that flow from them to the South beyond the space of a degree of latitude. But it is not peculiar to "these regions. The same malady prevails among the people inhabiting the Morung, Nipal, and Almora hills, which, joined to those "of Bootan, run in continuation, and bound to the northward, that extensive tract of low land, embraced by the Ganges and the Berham-"pooter."..... And farther, "This same disease is also more particularly met with in the low lands adjacent to these hills. From the "frontier of Assam, which I reckon to be in the 27th degree of North latitude, and 91st of East longitude, it is to be traced through "Bignee, Cooch, Bahar, Rungpore, Dinagepore, Purnea, Tirroot, and Betiah, along the northern boundary of Owd in Gorraspore, "Barraitch, Pillibeat, and on the confines of Rohilcund, to Hurdewar which is situated in thirty degrees N. latitude, and 78° 25′ E. "longitude. This evil, as before observed, in Europe is called goiter, and has the effect, or rather is accompanied with the effect, "arising from the same cause, of debilitating both the bodies and the minds of those affected with it."

From Sir Stamford Raffles's History of Java, Vol. I. p. 60–61.

"Here (in Java) as in Sumatra," writes Sir Stamford, "there are certain mountainous districts, in which the people are subject to "those large wens in the throat termed in Europe *goitres*. The cause is generally ascribed by the natives to the quality of the water; but "there seems good ground for concluding, that it is rather to be traced to the atmosphere. In proof of this it may be mentioned, that "there is a village near the foot of the Teng'gar mountains, in the eastern part of the Island, where every family is afflicted by this "malady, while in another village, situated at a greater elevation, and through which the stream descends which serves for the use of "both, there exists no such deformity. These wens are considered hereditary in some families, and seem thus independent of situation. "A branch of the family of the present *Adipati* of *Bandung* is subject to them, and it is remarkable that they prevail chiefly among the "women in that family. They neither produce positive suffering nor occasion early death, and may be considered rather as deformities "than diseases. It is never attempted to remove them."

From Mr. Marsden's History of Sumatra, p. 42.

"From every research that I have been able to make, I think," states Mr. Marsden, "I have reason to conclude, that the com-"plaint is owing, among the Sumatrans, to the fogginess of the air in the vallies between the high mountains, where, and not on the "summits, the natives of these parts reside." Mr. Marsden farther mentions, that between the ranges of hills, a dense mist rises every morning with the sun, in a thick, opaque and well defined body, and seldom disperses till after noon; and that, as the goitre is peculiar to those regions, it may be presumed that it is connected with those cold and uncommonly gross vapours.

From Sir George Staunton's Embassy to China, Vol. II. p. 201–202, who, after having mentioned that the goitre is a frequent complaint in the vallies of Tartary, north of the great wall, vallies "with a contracted horizon and dark atmosphere," writes as follows: "In villages dispersed through such vallies, many of the inhabitants were found labouring under a disorder observed in similar situations in "the Alps, and known there by the name of goitres, or swelled neck. The glands of the throat begin at an early age to swell, and gradually "increase, in some to an enormous size. The swelling begins immediately below the parotid gland, and generally extends under the "jaws from ear to ear, affecting all the submaxillary glands. Dr. Gillan estimated that nearly one sixth of the inhabitants he saw had "this deformity; which is said, however, not to appear such in the eyes of those villagers. Both sexes are subject to these swellings, "but females more than males; the latter removing oftener from the spots where the causes exist, whatever they may be, that occasion "them. But the minds of many of them were much weakened, and perhaps of all in a less degree. Some were reduced to a state of "absolute idiocy. The spectacle of such objects, which fails not to convey a serious and even a melancholy impression to persons who "view them for the first time, produces no such effect upon those among whom they are bred. The objects themselves are in their "general habits cheerful, and lead a mere animal life, as contradistinguished from that in which any thought or reflection is concerned." .....And farther, "It is likely, that a particular state of the atmosphere among mountains, must concur towards operating this effect. "The part of Tartary where this disease abounds, has many alpine features, much resembling Savoy and Swisserland."

That part of the foregoing extracts which relates to eastern Asia demonstrates, how extensively the goitre prevails there. The results of some farther enquiries made from travellers in the East Indies, and of researches in other works on India still in manuscript, which have been obligingly communicated to me, tend to show, that the disorder is found more prevalent on the left or northern bank of the Ganges, than on the southern, between that river, the Berhampooter, and the foot of the hills of Nepaul, Bootan, and others, the first step to the high mountains of Tibet; that the extensive tracts, whose inhabitants are so generally subject to it, chiefly consist of low forest lands, which are rendered very wet and swampy by the abundance of the waters which flow down those mountains, and

remain stagnant on the surface of the ground; and that *as soon as the first hills are ascended, and the low and fenny tracts left, goitres are seldom seen.* The low lands of Bengal, where they have likewise been found, are much watered, not only by rains and rivers, but also by the frequent artificial inundations of rice grounds.

The goitre is found in England, as also a swelling of the neck called mumps; in Scotland, branks: but comparatively with the appearance of these diseases in other countries, they might rather be called symptoms of them in Great Britain, than the diseases themselves. The goitre is, I believe, chiefly observed at and near Castleton, in Derbyshire; and if I recollect the situation of the spots right, they are either low, contracted, or mostly uncultivated. Close to that County, at Bulwell, in Nottinghamshire, in a small valley exposed to annual inundations of some duration, the principal part of the inhabitants are or have been with the mumps, of which a cure is stated to be there easily effected; and I am farther informed that this last disorder is found to prevail in particular situations in other parts of England. It might be conjectured that the influence of the sea air tends to check the progress of those diseases here, and to prevent them from assuming more striking features, as it does not appear that either in Asia or America they have been observed near the sea shores.

Having noticed in the vicinity of Santiago, in Chile, a crust of a very fine whitish deposit, left by the water along the irrigating channels, and brought some of it for trial, it has not been found to effervesce in acids, has shown only a very slight trace of lime, and seems chiefly to consist of alumine having a strong smell. The water which brought it down is a mixture of the western streams of the Andes for a length of perhaps forty or fifty miles, and is very commonly used for all purposes at Santiago and in its neighbourhood. As the eastern torrents which form the river Mendoza run in nearly the same parallel, one might be led to suppose, that their waters are of much the like kind.

I have learned from a good source of information, that goitres, some of which very large, are found in Upper Calabria, below and on each side the Apennines, where the waters which come down those mountains form extensive fens, and in many spots whose situation is not, any more than their atmosphere, contracted; and that in other parts of the kingdom of Naples, where are many swamps and small shallow lakes, the disease appears to assume a different character, and to manifest itself in such a general enlargement of the neck and head, as we have already seen in Mendoza and elsewhere.

I have been told that in the great vale between the Alps and the Apennines, this disorder is confined to places comparatively low, and where, owing to considerable either natural or artificial moisture, the waters remain a long time stagnant on the ground; whilst in towns and villages situated at only a small elevation above those spots, and where the water used is supposed to come from the same sources, the inhabitants are not liable to it.

In the beautiful vallies of Antigorio and Formazza, seldom visited by travellers, where majestic mountain scenery, very numerous and fine waterfalls of all shapes and sizes, a no less pleasing than striking contrast between the very dark rocks of the high mountains on each side, and the luxuriantly smiling vegetation of the ground below, exhibit, in many spots, and within a short distance, the different features and complexions of English, Swiss, and Italian prospects, I have not seen the least appearance of neck or head swelling; nor in the vallies of Tessin. All these are well drained: but, if we pass from them over the ridge of the Alps, we no sooner approach the marshy meadows of Wallis, of Uri, of Schwyz, of Unterwalden, of the Oberhasli, than we find abundance of goitrous or otherwise swelled necks, and many emaciated inhabitants. In short, it might perhaps be advanced, that in almost every part of Swisserland where there are lands which are not undergoing a frequently renewed cultivation, and on the surface of which waters are left more or less to stagnate, a decided swelling of the neck or a tendency to it will be observed.

What has been stated above on this subject may, besides the inferences already drawn, be allowed to warrant the conjecture, that it is not so much because mountains form narrow vallies and contract the atmosphere, that the inhabitants of mountainous countries or near them, are more subject to the goitre than others, as it is because very elevated lands send down to and along their bases a great abundance of water, much of which, particularly where there is no cultivation, remains there on the ground in a stagnant state; and that although the atmosphere be not always (and indeed not at all, where the greatest proportions of swelled necks seem to be produced,) contracted *between* mountains, yet it may often be deprived by a high range of them of the full effect and advantages of particular currents of air, for its purification when in a foul state.

It appears that Doctor Coindet, of Geneva, after very persevering and scientific labours, has discovered an effectual cure for the goitre: were now the cause of the disease ascertained, both might be attacked, and with united efforts ultimately eradicated.

CHAPTER XI.

SOME OCCURRENCES DURING A SUBSEQUENT JOURNEY.—DEPARTURE FROM MENDOZA.—PASSAGE OF THE ANDES.—ARRIVAL AT SANTIAGO DE CHILE.

EXTRAORDINARY adventures are to travels, what strong accidents of light are to landscapes; and it is probably owing to their effect, that a considerable scope of indulgence is granted to travellers, who are generally allowed to introduce small incidents into their narrative, and, provided veracity be not in the least offended, to make the most they can of them, if they have no events of a higher interest to relate. This is the case with me: but, in order to avail myself of some unimportant occurrences on the pampas, it is unluckily requisite, that I should advance in time and retrograde in steps, two moves for which we feel very little disposed in this world. What may, however, obtain toleration even for this, is the fear that my travelling reader will have enough of my company to Chile, and therefore the hope that he will kindly permit the harvest to be reaped whilst the sun shines. If he consent to pass over one year, and to follow me back again from hence to Buenos-ayres on horseback, we shall speed as fast as possible; and as to the conveyance from which we are once more to alight in Mendoza, I will engage, that it shall be still more expeditious and easy, than the turning over of a leaf in a book. By allowing our muleteer and peons time for completing the preparations necessary for our passage over the Andes, and by supposing ourselves here in April, 1821, instead of May, 1820, we shall start at a time when the road is announced to be safer than has been the case for some months before.

A chief, named Carrera, opposed to the present independent governments, with about two hundred followers, and some Indians stirred up by him, had interrupted the communications between this place and Cordova, but after some engagements, was reported to have been defeated, and his band dispersed. The carts and mules

were again loading here the accumulated produce destined for Buenos-ayres, and I was preparing for my departure, when some officers of the Buenos-ayrian army which had been acting in Upper Peru and was disbanding for want of pay, came to Mendoza. One of them most earnestly requested that I would take him with me to Buenos-ayres, where he expected to find the means of subsistence: the only obstacle was the additional expence, and he proposed that I should dispense with a guide, as he knew the road and postmasters well. As I wanted no personal attendance, could saddle my horse, and, in case of need, cook a supper, we sat off on horseback, and I was glad to find, after the first rides of between eighty and ninety miles a day, that the exercise was rather less fatiguing than I had expected.

The chapter of accidents began with some tumbles, one of which was most providentially harmless. My horse at full speed, on a gentle declivity and a road deeply cut by mule paths, fell down, glided along it some yards, remained lying across it, and I obliquely under him, his head and mane touching my neck. I endeavoured to draw myself out, but could not: the horse laid as still as if he had been dead, and my fear was that he should attempt to get up again. Fortunately, my fellow traveller and the postilion were behind me, and as soon as they got near enough, I requested that they would not approach on horseback, but walk gently with their horses: they came with as little noise as possible, lifted up a part of the body of mine by the head and neck, and with an effort I disengaged myself, after having lain four or five minutes in the situation which I have described. How it happened that the animal should have remained motionless so long, and allowed himself to be handled by the head like a log, must be placed to that account of escapes which have given rise to the just saying, that Providence watches over travellers. My spur was broken, but no other mischief done. We had ridden about the half of a stage of twenty seven miles, and the horse performed nearly the whole of the other half at a gallop, a sign that it was not fatigue which had made him fall and lie still. I have already observed that these horses are awkward: the deep mule paths in this spot would have made a very safe road in England.

Two Englishmen from Chile with a peon, after riding above a hundred miles at one stretch, overtook us the third or fourth night after our departure, and we all started together the next morning. At our passage through San Luis we heard, that since an engagement which had there taken place, between Carrera's band and the inhabitants, the former had gone elsewhere, and were supposed to have dispersed: but we had no sooner entered the state of Cordova than, in the evening, on our arrival at a lonely and rather substantial post house, we found the master much alarmed and his wife crying. They told us that the chief and his followers were again on the road, not far from them, and that seeing our party, they had concluded that we belonged to him. We comforted our hosts as well as we could with some matés of genuine hierba, and they us with a good supper, after which, strongly barricading the door, we all slept in the same room. Upon these occasions the postmasters are as much as possible in communication with each other; and hearing the following morning that the road to the next house was clear, we started, and proceeded in this way, from one to another stage, with alarms, but concluding that the accounts were much exaggerated, and that the most straight and expeditious course would be the safest.

We were not at a great distance from Fraile-muerto, when the inhabitants of some small cottages within sight, came out, waved their hands, and made signs to us to go back again: we rode up to the huts and were told, that Carrera and his troop were in that village; that some hundred Indians had joined him; that these and some stragglers were plundering where and whom they could; that they would burn us, or sew us up in hides, or carry us into slavery. We did not believe every word, but we did enough to become more uneasy, and continued our journey till within twelve miles of Fraile-muerto and the post house, where we stopped to pass the night. Here the news became worse, and were, that Carrera had really been in that place the day before, and that his intention was to cut off all communications on the road. In the night arrived two expresses from Buenos-ayres going to Chile; and they had been under the necessity of making long circuits, to avoid several

post houses where the marauders had been, particularly that of Fraile-muerto. A peon, sent there for information, reported however on his return, that he had not seen any of them, and we proceeded, notwithstanding many exhortations that we would go back to Mendoza, a distance then of five hundred and thirty miles.

We entered the village, found it very quiet, and called on the Alcalde or judge, to tell him of our purpose; that we had nothing to do with the contending parties, and as Carrera himself was a gentlemanly officer, we expressed our wish to have his leave to pass freely through any of his posts with which we might fall in. The Alcalde and the people about him had not, on this occasion, prepossessing countenances, and he, with an excess of reserve which was not encouraging, said that he would endeavour that our request should reach *General* Carrera. We waited two days, but he was not to be found. The officer who travelled with me, and belonged to a party opposed to him, became an object of suspicion. The guide, who was much frightened and dejected, told us that he was sure the intention was to waylay us; and a person of some respectability in the village hinted likewise, that some foul play was probably in agitation. We had partly agreed to go to Santa Fe by what is here called *el campo*, which means some distance from roads, paths, or habitations; but fifty horses were necessary for this undertaking, and the river Tercero was deep where we must cross it. The next morning we thought that the least danger was in going straight forward, as the band was supposed to have taken a southerly direction. At first post horses were refused by order of the Alcalde, but afterwards granted, and we went on, the peon convinced that we should be murdered.

We had travelled two or three miles, when a man with a musket overtook us, and said, that the judge ordered the officer to go back to Fraile-muerto, but that the foreigners might proceed. Against his gun we had three braces of good pistols, and we answered that the order should have been given in writing, that we could not abandon the officer, who was our travelling companion and of whom we had taken charge; that we all would return, or none of us. The soldier rode back with our answer, and we forwards, as hard as the spur and the whip thongs could impress

our horses with our purpose, and make them assist us in it: but, to outride pampas men requires more odds than we had taken, particularly with baggage, and this was not to be left behind unless by main force: I had above a thousand pounds in doublons in my trunks, part of which belonged to a merchant of Mendoza, who had requested me to deliver it to his friends at Buenos-ayres; and my English fellow travellers had, I believe, several thousand in theirs. The stage was of twelve miles only, and new horses were getting ready, when the same man joined us a second time, with a written order for the officer to return with him. We agreed that it should not be complied with, stated to the postmaster what had happened, who, with a generous warmth, said that he had nothing to do with the contending parties, and would give us as many of his best horses as we might require, to proceed in what manner we pleased. The officer was offered to continue with us, or horses and money to get out of the territory of Cordova, "por el campo;" but he chose to remain in our company: the gendarme was taken "par la douceur," and the officer requested of him that he would go to a house in sight about three miles off, and there wait for him, as his intention was to attend to the order; and the man went. Our object now was more speed than ever, as we were not without fears that the Alcalde, finding himself trifled with and deceived, might send sufficient power after us to enforce his commands, and on leaving the post house, the young soldier was seen on the plain watching us.

But, the stage performed, on our alighting before the isolated post huts of Barrancas, we found them deserted. A large pot was on the fire, and the dinner in it cooked. A loom had the appearance of having been hastily left. We heard some groans, and discovered a very old woman in a small place backwards, lying down, and unable to move or to speak. The river Tercero was near, and we tracked the post horses to it; when, on the opposite bank, two men on horseback, with muskets slung across their shoulders, made their appearance, and, seeing that we were travellers, said that they would cross the river over to us: their horses rather swam than forded it, and we found that one of them was the postmaster. They related that,

not long before our arrival, a man had passed by on horseback at full speed, crying " los Indios ! los Indios !" the Indians ! the Indians ! on which they had immediately left their house, and driven their horses across the river. The women were concealed in some wood on the other side of it, and did not return. After much delay some horses were driven back, got ready for us, and we rode on ; having heard that some Indians and stragglers had visited our next stage, Saladillo, a hamlet where some fighting and plunder had taken place, and in the vicinity of which they were still supposed to be : but we did not find any of them in it ; they had left it, and a man was lying down in a hut with a ball in his thigh, for whom we made up a small sum of money, hurrying the postmaster, as it was nearly dark, and this not a safe place in which to pass the night. Two men said that they would escort us, and the fear of offending them, rather than our inclination, induced us to accept of the offer. They led us fifteen miles at a very hard gallop in the dark, the horses jerking and swinging us, or at least me, most uncomfortably, to avoid the holes on the road. It was impossible to go farther than one stage from Saladillo, and keeping a good watch over our trunks, we plied the better feelings of our escort with hierba, cigars, brandy, and a good supper. Twice during the night the officer thought that he heard the trampling of horses, and that the Alcalde's men were come to lay hold of him.

Early the next day we left behind us, with the territory of Cordova, all farther apprehensions, and were breathing and eating freely, after an uneasy ride of the last two hundred and forty miles, when a man, of a soldier or seamanlike appearance, entered our post hut, and placed before us some water melons, a pitcher full of milk, and a bowl of cream which was the first and last that I saw in South America. The pampas had not changed the rosy complexion and fair hair of our visiter, and it was impossible to mistake him. He had addressed us in Spanish, and we spoke to him in English ; but he pinched his lips, and all that we got from him, besides his timely and obliging fare, was " yes countryman, or no countryman," to our questions ; with some eccentricity of countenance. We heard, afterwards, that he probably was an Englishman, practising medicine on the pampas, where no diploma is required.

Near Buenos-ayres we found that some Indians were also plundering the inhabitants, and the day after our arrival, an account was brought, that two foreign merchants of that city, who were on their estate superintending the slaughtering of cattle and salting of meat, had been murdered by them, and their ladies carried to the southward into captivity; of whom I understand no account has yet been received: many of the poorest people in Buenos-ayres stood in the night before their town house, making loud lamentations, according to the custom of the country. Some days were necessary to get a small detachment in marching order, and in the meanwhile, a small band of plundering Indians had time to drive away very considerable herds of cattle from several estates. News were lately received in Europe that Carrera had been taken at last and shot.

The time appointed by the muleteer for our departure having arrived, we must return to Mendoza. Two roads and passes lead from this town to Santiago in Chile; the one northwestward by Uspallata to the pass called the *cumbre* of the volcano, where the cordillera is only a single ridge; the other southwestward, near the river Tunuyan, to the pass of the *portillo*, where the same cordillera forms two ridges, both of which must be crossed. The journey by the former is a little more than three hundred road miles, and by the latter less than two hundred; but this is only practicable during two or at most three months in the year, the distance from one ridge to the other being thirty miles, and the snow storms between them so frequent and sudden, that the passage, even then, is accompanied with some danger, as there is not any shelter. In the latter end of February, our month of August, a party of travellers suffered from a storm in that spot, and received some injury in their hands and feet. The pass of the volcano is less exposed to that inconvenience, and there are, on both sides of its ridge, high vaults strongly built for the shelter of travellers: from the end of December to the beginning of May, it is generally easy, and without snow; but during the other part of the year, it is attended with more or less difficulties, danger, or total interruptions. The latter is the high road, and both are described in the map.

The price for the passage, in the favourable season, is five dollars for each mule's load, and six or seven for every saddle mule: but as it was late, and much snow had already fallen, we were under the necessity of paying nearly three times as much, and of promising more, in case that the central ridge were to be descended on foot or on hides, and the loads carried or slid down it by men. With well known muleteers there is less risk of being attacked in the Andes than any where else; and as the mules have the most arduous labour to perform when they become most exhausted, it is much better to pay some dollars more, and to contract with one who possesses a good number of these animals and the means of keeping them well. The attempt of a traveller to direct the passage himself, by purchasing mules and hiring peons, would be highly dangerous. On my return to this town, and immediately below the higher ridge, the muleteer pointed out the skeleton of a foreigner, who had left Santiago some time before I did, with a peon only, and had, it was supposed, been murdered by him. Small crosses, erected in several spots, indicate that travellers have perished there; but in this instance it had not been done, owing perhaps to superstitious scruples, or to the total want of even small sticks in that place.

On the 27th of May, 1820, in the evening of the day after our arrival at Mendoza, all being in readiness, the mules came to receive their burthens, and our party was joined by a Peruvian officer. The practice of the muleteers is to make the first stage of four miles only, for the purpose of ascertaining if the loads are well distributed, and the cavalcade in a good travelling trim. The journey over the Andes at this late season requires some precautions. The peons had made us provide, by a supply of ponchos and of thick worsted boots, against the danger of being frost bitten; and against that of being starved, by sacks full of tongues, beef, bread, onions, sugar, and hierba, in sufficient abundance to keep us a month. A cask and horns full of Mendoza wine were to assist in quenching the extraordinary thirst which is felt in passing the mountains, as the peons had not forgotten to warn us against the scarcity of water or its bad quality. The poor mules were groaning

under the weight of our fare, whilst their own was to consist, during the day, of some water very sparingly allowed, and at night, of a little grass gradually decreasing to a few blades, with the branches of half dried up shrubs, the finding of which was to be left to their own sagacity: the knotty thongs, and the long pointed spurs, were to prevent the consequences of their striking for an increase of allowance. The bad usage of so many most useful animals, seldom restive without a just cause, in these and many other countries, is apt to remind us of the philosopher of Samos and his metempsychosis. Should these beasts hereafter have an opportunity of returning to us the blows, wounds, and hardships, which are so unmercifully inflicted on them, and to turn against us the tables on which our respective fares were going to be spread, our fate will be miserable indeed!

For the first time since we had left Buenos-ayres we slept in open air; and the next day, in an oblique northwesterly direction, up a gently rising ground, we made for the long mountain of Mendoza: its top was covered with snow, an indication that the central ridge had already received a part of its winter clothing. For some distance the whitish soil continued fine, but became afterwards mixed with stones, gypsum, and substances evidently of volcanic origin, such as lumps of roasted or vitrified matters, and smoked or half calcined fragments of clay slate. We passed by a considerable number of small hillocks from five to ten feet high, some of round forms like limekilns, others elongated, of a soft white substance, several of which had on their surfaces little stones or gravel, blackened and apparently partially calcined. At the extremities of the mountains of Cordova and of those of San Luis, on the ground near the underlying white rocks already mentioned, I had likewise found stones of a similar description. On this eastern side, the broad and high mass of the mountain of Mendoza does not exhibit the effect of any convulsion: the clay slate shows itself in very uniform shapes, and towards the base, some long ridges of the same formation rise a little above the ground, apparently indicating that this was a large basin or valley which has been gradually filled up. But at some distance in the plain rises a small isolated group of hills, from one to two hundred feet high,

which had the appearance of having undergone some violent action; and here, in some parts of this scenery, begin that crudeness and singularity of tints, and that impression of recentness of operation, which I afterwards found to accompany the view of many parts of the Andes; as if nature had not long ceased to be convulsed. The shrubs and small trees thinly scattered on this slope, without any grass between them, looked as if they had been half roasted; and indeed to dismiss the idea that they were not burnt or dried up past recovery, required the lapse of some months, and to see vegetation of the same description in Chile again revive after the showers of winter.

Towards the evening we entered the mountain and the Andes, by a glen of a steep ascent, up which we rode, and which carried us so deep into it, that we lost all view of any ground except what was close around us, like small funnels; and we continued to wind, during an hour and a half, out of one steep funnel into another, until one of them became a little larger than the rest, and in it we found Villavicencia, where we halted for the night. This *town* serves to illustrate what has been observed, of the liberality with which the name is bestowed in South America: it consists of two huts in which we did not find any inhabitants, and a corral. Here, an English lady was some years ago brought to bed, and under the necessity of postponing the journey over the Andes.

Our resting place was in the open air, where a fire was lighted up and supper cooked, to which an uninterrupted ride of thirteen hours had insured a welcome reception. The day had been so hot, that it was with every prospect of sound sleep that we laid ourselves down; but there suddenly descended to us such a cold breeze, to announce the vicinity of the cordillera, that it did not allow some of us, of whom I was one, to sleep a moment, and our surprise at the effect of it ended when, in the morning, we found that some running water near us was frozen over. Owing to a peculiar introduction and accident of light, the rising sun was here most magnificently beautiful, although the prospect did not extend beyond the sides of the funnel and the sky above it. The effect was rather that of a night scene, and of some forest

VILLAVICENCIA.

on fire before us, than of the break of day and a rising sun. The Plate IX. is from a sketch made of Villavicencia after we had left it. The travellers are getting up at the dawn of day, and the peons lighting the fire for taking matés. A man is going to saddle the mule left in the corral all night, and to fetch the others from their pasture ground.

We left Villavicencia with an impression that the cold of the cordillera would be very intense, and continued our journey up other funnels of the same steep ascent as before, with the argillaceous slate every where exhibiting itself around us in the manner described in the fourth chapter. I observed along the stream many fragments of a substance which had undergone ignition, and having ascended about two third parts of the mountain, we came in sight of a very large yellowish mass from which they had been detached, which hangs down over the path many hundred feet, with an appearance of having been in a fused and boiling state: here and there a few very small white or grey masses showed themselves in the slate. This eastern declivity is tolerably well covered with grasses and shrubs in many spots, notwithstanding the great dryness of the climate: its small and deep basins are favourable to the growth and shelter of plants, and a botanist would probably find here an interesting crop. It is said that a little gold may be obtained from some of this soil, by washing it. The small streams with which we met, lose themselves before they reach the foot of the mountain.

Having passed up through perhaps thirty or forty funnels, during more than five hours, besides the ascent of the preceding day, we arrived at the top of the mountain, where the great power of the sun had already melted a considerable part of the snow which had fallen during the late storms. Here, for the first time since our ascent, and from one spot only, we caught a view of the pampas, which, had we not known that they were land, we should have taken for a continuation of the sky, as neither their horizon nor any object whatever could be distinguished: the whole appeared a blueish expanse, bounded below us by our own mountain: I have twice seen the plains from this spot, with the clearest possible sky and the same

effect; and when the nature and steepness of the ascent, and the seven hours required for it at a good step, are considered, the height of it may be found above eight or nine thousand feet. I must here observe, that if I often venture to state the probable elevation of mountains, it is only because it assists description, and that my standard is not only their appearance, but also the time required for their ascent, and the nature of it, compared with what is necessary for reaching on foot the top of mountains in Europe of five or six thousand feet above their base.

With the exception of some higher summits, which also appeared formed of the undisturbed shist, the ground over which we crossed the breadth of this mountain was often without any vegetation, and covered with substances, either thrown over it by a volcano, or having otherwise undergone combustion; sometimes offering themselves in the shape of heaps like those already mentioned, and many with very striking white and red colours. When we came to the western declivity, which is very gentle, we obtained a view of the valley or basin of Uspallata, the surrounding mountains of which, owing to the variety, crudeness, and decided character of their tints, presented a view as new to me as it was interesting. Beyond it was the inner chain of the Andes: some parts of its higher central ridge were visible, but not with very striking effect, and those immense masses appeared resolved to preserve the same heaviness with which they had at first presented themselves to our view.

As we descended towards Uspallata, the scenery nearest to us increased in singularity and interest; the ground appeared as if covered with the ruins of ovens and furnaces: some large heaps looked like turf ashes, but with more decided hues: soft substances, somewhat similar to shale, were seen by the road side in thin layers or plates, which evidently had run down in a state of fusion over a small patch of ground, and then cooled, or had penetrated and flowed into some clefts of slate rocks: some appeared partly calcined; others were in vitrified lava, others again roasted. Many whitish heaps, of round forms, had on their surface a thin covering of very small dark stones, as if they had been sprinkled over them, and in some degree similar to what I had seen near Mendoza, but of a purply hue, and appa-

rently porphyritic nature: then came some strata of very coarse blueish sand; rocks of a soft greenish and light porphyry, the clay slate rising here and there out of all this without the least appearance of derangement, but very much darkened by smoke. We soon came to a spot where this scene of combustion became still more characteristic, and in it we found the silver mines, several of which were near the road; but the strokes of the miners were not heard, and they are I believe entirely abandoned. I collected some specimens of what I found near them in broken fragments, probably rejected ore; and out of one of the mines I took some pieces of the greenish porphyry mentioned above, which appeared to have been the matrix of the ore. The vitrified and scorified substances on the road cannot have proceeded from any human works here; for, not only was, I believe, the silver of Uspallata entirely extracted by amalgamation; but if the ore ever were roasted, it must have been at the hamlet, and not here where is neither wood nor habitation. Having continued a descent, which in all may form a little more than the third part of the elevation of the mountain from its eastern base, we reached the basin of Uspallata, and afterwards its hamlet, which exhibits the remains of enclosed grounds and of much better habitations, but now only consists of three or four decayed huts, with a Mendozine guard house where passports are inspected.

Around a considerable part of the basin, the slate rock shows itself with the same form as before, but very much darkened by fire and smoke for several leagues. Behind and above this fumigated base, to the southward, rise two masses of a crust rent asunder, and thrown open by some violent action, each reclining from what is no doubt the crater of a small and comparatively low volcano, and exhibiting about half a dozen strata of various colours, red, brown, yellow, and white: they showed by their correspondence that they had formerly been united; and this in much the same manner as the strata of the mountain of Hartz, in Germany; but indicating still more decidedly here the bursting open of the crust. Very near that spot, between the volcano and the inner Andes, is a very deep and narrow opening, through which passes out the river Mendoza, and which adds much to this inte-

resting scenery. The higher chain exhibits masses of white, red, and other colours, to a great height, mostly barren: no trees rise beyond the bottom of the basin, part of which holds for several miles, and to an elevation of two or three hundred feet, stones rolled out of a valley by former waters. But a considerable part of it is covered with a volcanic substance, in small rounded heaps of regular shapes, and from five to ten feet high or more, the contents of which can very easily be detached in small angular fragments of about the size of a thumb: I made a hole in one of them a foot deep, with the hand only; but at a greater depth the contents might be found harder: many such heaps can be seen from the hamlet, below glens down which their contents probably flowed from the volcano, and of a darker tint.

On my return through this valley I rode to some of the fumigated rocks, to see what they were, and found that they had been exposed to considerable heat, and came off in very thin partly calcined slates. Most of the algarobs, which sparingly cover the ground towards them, are almost as black in their stems and branches as if they had been charred, and it is really very surprising that trees can continue to live in such a state. The ground to the north rises to a gentle hill, down which flows the rivulet of Uspallata; and as its hamlet stands in a moist spot, the verdure of it forms a considerable contrast with the surrounding scenery, of which I feel unable to give a description adequate to the very striking impression which it has left: nor can I offer any other view of it, than what recollection and some attentive observation have produced, which will be found in Plate X. In front is the rock split and thrown up: on the left, the mountain of Uspallata, also called, el paramillo de las minas, which some travellers are seen descending; on the right, the inner chain of the Andes, and a valley to which our party is directing its course.

A very extraordinary effect is often produced on the mind, when its pitch is accidentally harmonizing with peculiar circumstances, and a strong vibration taking place, which it is no less impossible to define than to account for. This sensation is almost too highly spiritual for our reach, and such was that produced by this spot, when, supper being over, and the ceremony of going to rest performed, by laying

Sketched from Nature by P.S. on Stone by A. Aglio.

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USPALLATA.

aside the stone which had served us for a plate, the knife in its sheath, the knees and blanket which had made our table and its cloth, down again, I began to gaze at the stars, and to wait for sleep or a cold wind. The sun with its lights had gone far down and left us in the dark, but the scenery around us was still in the mind.

Those great travellers, who have been skipping from Europe to Asia, from Asia to Africa, and back again to Europe by way of America, are every where at home; but I, a little traveller, was not at home here. They will stand with their feet resting on Popocatepetl and Mont Blanc, their hands on Dhawalagiri and Chimborazo, viewing Corcovado and the new southern lands; they will turn about and look for a northwest passage or the magnetic pole, and feel no surprise at what they see; but I experienced a very considerable astonishment at finding myself thus passing the night in this volcanic antichamber of the Andes, and at what I had seen: it seemed as if crowds of ideas were dancing in the mind, with associations so rapid and figures so intricate, that I could not make any of the performances out: something like a cadenced shake alone was sensible, and some pleasing sounds heard.

The confusion gradually ceased, whilst sleep, the high master of ceremonies in this world, was I suppose conducting each performer back to its cell; and during this time some conversation took place, the subject of which was the name of Paradise, bestowed on Chile in several works. Every one present admitted, that this word should not be allowed an introduction into books without being accompanied with truth; and an idea, better read and informed than the rest, vindicated the authors who on that occasion had introduced it. Curiosity then became strongly excited, and desirous to know what a terrestrial paradise was, when the following description was begun of the abode which awaited us on the western side of the cordillera.

At our arrival upon the central ridge, we were to hear the ring of distant bells, of most extraordinary sizes, made of gold and silver, whose sounds were so full, so mellow, and chime so harmonious, that angels not men would be supposed the performers. Shortly afterwards we were to perceive, rising amongst beautiful trees of wonderful height, surrounded by lofty summits clothed with a most luxuriant

vegetation, and of tints never before seen, a pile of buildings, constructed with the finest porphyry, and of such size and magnificence, that the Great Chartreuse with its mountain scenery, placed by the side of it, would here appear but a summer house in a garden. The sounds of a more heavenly than terrestrial music would first arrest our steps as if by enchantment, then hurry them forwards to meet the gradual swell of its notes, and lead us to an hospitable mansion and its chapel, where, after a plain and fervent prayer from a priest, that the watch and check placed over the frailties of human nature might be rendered daily more strong and vigilant, and that both spiritual and temporal wants might be supplied, we should hear a discourse of such an impressive nature, in which, all mysteries and dogmas being avoided and left to the consideration and decision of each, our divine religion would be shown in its natural and beautiful forms, harmonizing so completely with the conscience and the rational faculties of man, even when in his lowest stage; so well fitted, by what it makes evident and what it leaves to conjecture, to the manifest purposes of this life, that Protestants and Catholics, Athanasians and Arians, Quakers and all sectaries, had they been present, would again have thought themselves but one body, and wondered how they ever were led, to clothe it with dresses of such various descriptions, and to give to it so many different appearances. The inhabitants of this spot, like the hospitable and useful fathers of the great Saint Bernard, employed in assisting travellers over the cordillera, would give us a kind reception, and an entertainment, which by its simplicity and substance would invigorate our bodies, as their exhortations had our souls.

Continuing our journey, after the most comfortable night ever passed, we were to find ourselves, sometimes on a Righi, with its magnificent mountains and lakes around us; sometimes in a vale of Chamouny or of Neath; now passing under a cave of Fingal with its thousand pillars, and now riding along a giant's causeway, with columns ten times larger and more numerous. Here would be waterfalls, to which those of the Niagara, of the Rhine, and of the Formazza, the Pissache and the Staubach, would offer themselves to our imagination, only as the contents of so many troughs,

pouring over mill wheels. But as we descended the Andes, our gratifications were to become more and more sensual, and whilst we should sometimes be travelling along a river, another Rhine for the beauty of its banks, and another Amazon for its size, we were to meet with huge casks, to which the tun of Heidelberg would be but a barrel, and out of which some Patagonians, of the size seen by early navigators, were to offer us, in golden pans of exquisite workmanship, the most delicious wines.....Here, however, sleep entered the room and put an end to the description, an interruption which I did not regret. We may easily believe, that He who made the prismatic colours, could produce another, entirely unlike what we have hitherto seen: yet any such, we ourselves cannot even imagine; and the inferior scenes of a terrestrial paradise would only lead us, to fine glittering mansions and splendid entertainments, gildings and silverings, tables and mirrors, gear and dresses, as beautiful as it is in our power to conceive them; fineries and gauderies, gimcracks and gewgaws, puppets, dolls, and toys, all got without any labour or cares.

Early in the morning we left the hamlet of Uspallata, the last inhabited spot on this side of the Andes. To form a near estimate of distances, in this climate and under this sky, some practice is required, and nowhere perhaps more than in this valley. When we were on the point of entering it the day before, it had appeared so narrow, that we had supposed its width to be from three to four miles, and that we should be able to leave it far behind us before sunset; but an hour and a half on that day and three the next morning were required to cross it, the whole distance being about fourteen. Our peons were unable to explain the cause of such a peculiarity in the atmosphere of this spot, but they could tell us of one of its effects: we were to feel a thirst still more difficult to allay than before; the waters of the torrents, said they, were worse and very unfit to drink; if, therefore, we wished to do so when thirsty, the only expedient left, was to go with the empty cask and horns to the guard house, and there have them again filled up with Mendoza wine: this reasoning and conclusion, which we knew to be dictated by long experience, appeared to us so full of good sense that we yielded to it. The supply

being got we proceeded, and when I asked the muleteer, if the high mountains before us were the cordillera, he laughed and answered, that we should be travelling and ascending two whole days longer before we could see it. There was a kind of emulation between him and me: when he named the cordillera, it was always with emphasis, and evidently with the wish that the word should make an extraordinary impression on us; and I, as often attempted to muster up Spanish language sufficient to talk down his cordillera, and to make him suppose, that their mountains could not excite wonder in one who had seen and crossed some parts of the Alps: our conversation on this subject might perhaps sometimes produce those flowers in logic called puffs; but his rhetoric was of a higher order than mine, owing to my ignorance of his language.

We passed amongst a considerable number of the white round heaps which I have before described; afterwards by prodigious accumulations of what a more powerful body of water than the present Mendoza river has brought out; and, leaving the basin of Uspallata, we entered a narrow valley, of a very gentle ascent, and found its entrance covered with white fragments, so very like pieces of old mortar, that I could not without difficulty persuade myself, that I was not riding over the ruins of old walls: an adjoining mountain appeared formed of the same substance. After proceeding some way up the valley we again found the clay slate, and its summits partly covered with a crust, apparently similar to that of the mountain of Uspallata; here and there, some thousand feet below it, were regular white and grey strata, or sometimes small masses, of bodies heterogeneous to the chief part of the mountains. Some scanty and brownish grass was seen in patches above us, but without trees or shrubs; and only a few of the latter alongside of us, chiefly myrtles, widely scattered over the ground, with scarcely any other plants between them.

We arrived at a very bad path which hangs over deep precipices, below and almost underneath which runs the river Mendoza: it was rendered very slippery by some snow and loose stones on it. This, if a specimen of our road, made me suppose that our way over the higher mountains would be like the paths of the chamois

hunters in the Alps. A small cross indicated that some traveller had perished here, and, among other warnings, impressed us with the necessity of holding fast on our mules. A point of honour seemed to prevent us from dismounting unless the muleteer ahead showed us the example, and if these people ever get off their beasts on such occasions, there must be an extraordinary necessity for it. It required some caution and practice to avoid having the knees bruised, the feet turned back, or even the seat lost by projecting rocks, when endeavouring to keep close to the mountain side: even mules, with all their instinctive geometrical skill, sometimes knock their loads against them, lose their balance, and are precipitated; an instance of which kind I witnessed on my return, a little beyond this spot, where the mule which was going immediately before me with two boxes, struck one of them against a stone, missed her hind step, and rolled down some hundred feet, turning like a wheel, and the two chests, loosened from the animal, bounding down before it; some tackle leisurely sliding in the rear. The mule died shortly after the accident: the boxes were stopped by some sand and a large rock which interfered between the river and them, and their strong hide covering saved them from being broken open in the fall. We were able to reach the spot where they lay, by going back some distance, and there I saw the skeletons of several mules which had perished in the same manner. Yet, two men, with a single day's work, might render the road here very safe.

But to proceed with our present journey, the bad path did not continue beyond a mile and a half. We passed by and almost under a very enormous mass of a porphyritic rock, of a bright reddish yellow colour, which hung down many hundred feet, or perhaps thousand, from the mountain above us: it appeared entirely distinct from the rest, and as having cooled whilst flowing down or forced up in a state of fusion: the mass here, and that seen in the mountain of Mendoza, by their colours and formations, their circular undulations, and their contrast with the surrounding rocks, seem to indicate the effects of a strong effervescence. This valley is more or less partly filled, and in some places to the height of several

hundred feet, with alluvious matter; stones and pebbles brought down and rounded by the current of some former large body of water; and through this has the present torrent again sunk a channel to a considerable depth. It exhibits the same features as some of the large western vallies in Chile, which have already been described in the second chapter; and very high banks, shelving down with much regularity, are likewise found here in several spots: if these have been the work of former inhabitants for the purpose of irrigation, the appearance of the country has changed indeed, as nothing more is seen than a few small and half starved shrubs, of no pleasing tints: but the situation and climate of this long valley would be favourable to habitation, and, though narrow, be able to maintain a considerable population by the means of artificially irrigated agriculture. We rode on in it with much ease and a hot sun during thirty miles, and did certainly experience a thirst of the most uncommon kind; no sooner quenched than again felt; and having travelled about forty on that day, we stopped for the night close by some large rocks, which in their fall have placed themselves in different attitudes, very much for the accommodation of travellers.

The scene, dreary and lifeless around us, suddenly became full of animation where we stood. A large fire was soon seen and heard crackling its fuel, and, with a still more cheering noise, the meat which was roasting over it. The water for drinking matés was boiling hard. Even the luxury of two courses might be expected: onions with red pepper were ready to be poured into a beef pottage, and to give to it as high a flavour, as the most consummate science and execution of a professor in gastronomy presiding over a skilful cook ever produced to a princely palate, and a richer tinge than a Salvator Rosa ever gave to the sun when setting down an Italian sky. Nay, yet more than this: for, the shist and the porphyry were on all sides echoing the sound and crash of pestles, which were pounding the "carne," or dried beef for our muleteers and peons; their first and sometimes their only course, whose preparation is as short as that of an oatmeal cake for a Scot Highlander. The dried meat, which consists of thin layers pulled

off the most fleshy parts of the slaughtered beast in large slices, is pounded between two stones till its threads look like lint, and then put into a vessel with onions cut small: boiling water is poured over this compound, to which an abundance of red pepper gives a fiery colour and taste, and which requires no farther operation.

Some eagles and guanacos might have been lurking on high rocks to the leeward of us, inhaling the vapours arising from our kitchen; lamenting, like a poor hungry man passing over the grating iron that fences the hot and smoking feast, that the ascending fumes were not in more tangible forms. Such among us as could wait till the bell rang for supper smoked their cigars; those who could not, fell on the bread and tongues. As wars are thought by some a pleasant pastime, when they have returned from them full of glory, and void of wounds or sufferings, so is travelling, when, after a sultry and fatiguing day, the traveller can fill his stomach with wholesome food; and drink, even South American, wine, without inconvenience or ailment. The effect of two cold nights had rendered us skilful in selecting proper resting places, and this time we bade defiance to the frigid lungs of the cordillera, which might breathe and blow their worst, even unto the bursting of all its pipes.

At daylight the mules were driven in, and manifested evident signs that their supper had not been so abundant as our own. This was almost the last spot for the exhibition on the ground by our sides, of any thing more in an organic and living shape, unless indeed the huge masses before us should ultimately, and in the farther progress of science, likewise be found so; growing into layers and forms, by suchlike but slower processes as cause the rise and enlargement of bodies in the vegetable and animal worlds, and again decaying and decomposing out of them by fermentations, which Nature may sometimes think fit to accelerate in her large furnaces and crucibles, as we do many substances in our kitchens and laboratories. The journey of this day excited an anticipation of more interest: we were to enter into another long and higher valley, covered with snow, and formed on one side by the central ridge of the Andes. The rays of the sun struck on us soon after its rising, and tempered the chilling breeze. The mountains on each side continued to exhibit

the clay slate in immense bodies, whose stratification, although little conspicuous, seemed to indicate a westerly or northwesterly dip: but of this I was unable to have a generally conclusive observation, and the fragments on the ground appeared to indicate a slight transition into porphyritic rocks. When we arrived at the end of the valley in which we had been travelling nearly the whole of the preceding day, we saw through a very narrow opening the lofty summit of Tupungato, covered with everlasting snow, and presenting itself in the middle of it with a fine effect: it appeared as if very near to us, though its distance was probably not less than sixty or seventy miles: the little river Tupungata, which comes from it, unites itself here with the Cueva, and their mixed waters, also joined by another snow torrent from the north, take the name of Mendoza. A steep ascent and a turn to the northwest led us into the valley of *las cuevas*, the caves; and here, owing to the elevation and situation of it, a striking change of scene suddenly took place: the snow covered nearly every part of the ground, and we could see the whole of our day's journey set out before us, at the end of which rose the high summits and crater of an extinct volcano, near to which, on the left, is the pass of the cumbre of the cordillera, which we could not yet see. A deep northern winter, with forms as forbidding as its dress, now stood full in our view.

This higher valley is about half a mile wide, of a very singular aspect from its tints, and would I believe afford much interest to a naturalist: but we will first continue our journey in it over the snow, and afterwards see it without any. Soon after our entrance into it we met with the first *casucha*, or vault above ground, indicating that we had got within the limits of a rough climate: we passed by others, and had near us the little river Cueva, the only thing apparently in motion here: but it runs too tamely along for such mountains: a magnificent body of water, precipitating itself from rock to rock, then caught and squeezed between them, rushing out again foaming with noisy rage, carrying or threatening the work of destruction in its course, would suit this spot better: the stream though rapid runs so meekly and humbly along, that a small alpine torrent would turn it off, and drown

its murmuring noise. The traveller, led to expect waterfalls of some thousand feet, finds none; not even a cascade: he misses the dark green pine, gently agitated as the atmosphere heaves its breath, shaking off from its branches flakes of frozen snow, and he looks for it in vain. Seas of blue ice, of various fantastic forms, do not come down vallies and glens to meet him, and to pour their hidden waters out of clefts and caverns before him. With such features, the enormous masses here might claim some resemblance to the Alps, and then feel proud of their gigantic size. Even the rocks themselves will not assume threatening attitudes, and their bodies lie one over the other, in dull, smooth, and, I might almost say, sleepy postures, partly covered with their crumbling fragments. But on a sudden appeared, on a high spot near us, some guanacos: they looked as messengers from the cordillera, to tell us that a time was, when its rocks and waters looked not so gentle and harmless as now, that they were resting from most violent convulsions, and befitting themselves for the support of mankind; and, pointing to the volcano before us, bid us beware of raising their indignation by our complaints.

Yet at the entrance of this valley is a bold and lofty summit, which belongs to the central ridge, and stands aptly there as the ruins of an old portico: it is called *punta de la vaca*, from a cow which got up to it, and whose adventures are variously told. The ascent up the valley is not steep, and we only found it bad in a few places, where, on account of the snow, we were under the necessity of leaving the summer road. A gentleman of our party, who was incautiously walking behind a mule, was kicked by it; and, had he been an inch nearer to it, would have received very serious injury; the pain which this accident caused him, at first considerable, soon subsided. We came to a spot where, owing to the quantity of snow, it was necessary that our mules should climb and jump up, rather than ascend, a very steeply rising ground covered with it: the best place was reconnoitred for it, as if to scale the walls of a fortress, and the troop of relay mules first cleared it with the son of the muleteer, a lad who was glad of every opportunity to show us his horsemanship: the muleteer himself got easily over it; but when my turn came, at the

first effort of the mule, my saddle, and consequently myself also, passed behind the body of the beast: we both glided down its hind legs, with thongs fastened, stirrups and all the tackle, as neatly as possible, and I found myself seated on the path and the saddle, as if I had been riding. When it was observed that I was unhurt, there issued, fore and aft, such a shout of mirth at my mulemanship and odd position, as made the cordillera resound with it. Had I fallen a little to the left of the mule, I must have rolled down into the river, a distance sufficient to be bruised, and with water enough for a cold ducking; but the principal escape was from a kick of the mule.

It was almost dark when we arrived near the foot of that part of the central ridge which we were to cross, and where stands a casucha by the side of the Cueva. The day had been very fine, and little wind stirring. We went into the vault, in order to pass the night in it. And now, whilst supper is cooking, we will imagine a summer's day, and take another view of our valley, beginning at the turn into it after passing by the little river Tupungata. Here, the crude reddish yellow tints begin to contrast in a very extraordinary manner with that of the preceding masses; particularly those of the mountain on our left, which is a part of the cordillera properly speaking with us. Whenever, during my excursions in Chile, I have been able to obtain a near view of this lofty central ridge, with its deep ditches along it, of which our present valley seems to be one, the tints and character of it have appeared to me the same: red, white, and ash grey masses; the latter predominating; the mountains along it, more or less covered with like substances, but often exhibiting in their deepest glens immense beds of what I have described before as looking very like kelp, with a leaden or sometimes a greenish and silvery appearance, surrounded by the clay slate and other rocks. The red tinge of this valley also brought to my recollection some of the higher breaks of the mountains of Cumberland: but nearly all here is barren, and like deep turned out soil, mostly unfit to be the organ of vegetable life. The slate is I think now becoming much less abundant, and the rocks detached from the summits above chiefly consist of a very coarse breccia or agglomerate, in which are

seen some small stones of smooth forms, thin layers of very coarse amalgamated sand with a rather porphyritic appearance, and some other substances. I could not see any trace of real granite, and the agglomerate increased with the ascent of this valley, as well as the softness and decomposition of the rocks and superincumbent masses.

Some way up it, to the left, and on a platform perhaps a thousand feet above the valley, in a deep and narrow opening of the lofty cordillera, stands a pile apparently of a soft and coarse sand stone, faintly tinged red, green, and yellow, which looks like the ruins of a gothic cathedral of a magnitude proportionate to the scenery, with large and numerous tombstones before it, half buried in the sand or fragments detached from the building; the fine effect of which was rendered still more striking by some snow on the roof. Farther on is the bridge of the Incas, and the pieces of rocks on the ground are here very much intermixed with volcanic productions. This bridge is a natural structure, and its singular exhibition begins a few hundred steps higher up, where the bank of the Cueva forms a flat piece of ground, perhaps sixty or seventy feet above the river, and a hundred and fifty wide between it and the foot of the cordillera, which here rises very abruptly to a great elevation. In this nearly level ground are several warm springs, two of which are very considerable, and come bubbling up out of its surface, whose temperature I suppose to be from 105° to 110° of Farenheit; and quality, from their taste and greasy effect, sulphureous. A convenient bath is here formed, by a rock and some stones cemented together in the shape of a trough, into which flows an abundant spring. The water, which comes out in several places, runs and spreads down towards the river and the bridge, having covered the whole of the flat space with a reddish yellow tuffa, and in two places falls over the gentle inclination of the bank in small and divided streams, which, extending themselves as they flow, form two mantles with red, green, and yellow streaks, passing into other tints where they come in contact with each other: these streaks widen as the run of water spreads out in coming down the bank, and as their colours are of a decided character, each of these two spots has the appearance

of being covered with a large piece of drapery, of a new pattern, and of a very striking effect. But where the inclination of the surface has caused most of the mineral water to run into the river, there a combination of effects has formed a bridge, about a third part of which consists of the old alluvial deposit which this river has again undermined, and the other two thirds of the tuffa, which, gradually advancing, has at last joined it. This bridge appears strong, and its size, if I here follow the usual way of describing bridges, will be about twenty five feet long, and a hundred and twenty wide. A quantity of water runs also to the bridge through the tuffa, and drips under it, where it forms stalactites, one of which is very large, and hangs down near to the water edge in smooth flaky crystals, exhibiting the same colours as the mantles on the bank: lower than the bridge is again exhibited another natural piece of drapery, smaller than the former, and quite close to the foot of the mountain which here interrupts the work of the loom. Looking up the cordillera, immediately above the springs, with the assistance of a glen, an extensive crust may be seen on it, of a very regular convex shape, like the round cover of a dish of white earthenware, with some grass over it. Below the bank near the edge of the river is another bath. By whom or for whom these two baths were constructed, in such a place as this, without vegetation, and where the four finest months are but winter in a mild form, will probably remain an object of conjecture only. It is very probable that when the Peruvians extended their conquests to the river Maule, they also penetrated into these eastern vallies. As the breadth of the bridge forms an inclined plane, and the mineral water is still running over it, it may yet be gradually increasing.

Leaving now this spot, a little farther up, on the side opposite to it and the central ridge, is the mountain of the volcano. On and near the road is a great number of heaps of round and smooth forms, such as have been already described, but composed of a dark grey substance which evidently has undergone fusion: on them lie some large masses of rocks detached from the mountain: these have a sandy and porphyritic appearance, and look like iron slag of a light colour. I rode round

one of them; it exhibited signs of having been strongly ignited, and as if some stones formerly amalgamated with it, had been roasted out of its sides. Above the heaps is a break, down which the whole has undoubtedly come. At a short distance from this spot, higher up the valley, lies a vast number of heaps still more remarkable, of a yellowish or greyish white colour, and of smaller and very regular forms. I rode amongst a few of them, and found that each had its top composed of some cemented white fragments, which looked like dross partly ejected: at a distance these had the appearance of tassels on the crown of white and smooth nightcaps. Enclosed by these heaps, and I believe by every three of them, but am not sure of the number, are bowls; that is to say, every bowl has three heaps around it, and appears exactly like their mould. On one side of each bowl is a hole, perhaps two or three feet square, going down into the ground, and under only one of the heaps, like the funnel of a chimney. These holes are I suppose the origin of the name, de las cuevas, given to the valley, the river, and the casucha built near them. The regularity and extent of these small round heaps give to them at a distance an extraordinary appearance; they must have flowed in a state of fusion down a deep glen which is immediately under the crater of the volcano, as they may be seen a considerable way up towards it, and to have greatly extended themselves as they arrived on a more level ground. A few miles farther up are again other heaps of round and regular shapes, but of a different kind and colour, covered with small fragments of a dark grey substance, descended from another break in the mountain. These were the first with which I met on my return, and I rode over them without particular notice, but wondering very much how small fragments of rocks could have accumulated into such convex and regular forms, and it was not till I came to the next, that their white appearance, their singular tops, and the volcano immediately above them, gave me some explanation, and drew more attention to this scene of former action.

But my attempt to describe this spot is from a very hasty survey: muleteers and baggage soon get out of sight during short stoppages, and the mules show a

decided aversion to those investigations, which oblige them to hurry afterwards out of their usual step in order to overtake their party. The crater of the volcano, some miles in circumference, is surrounded with, or formed by, rocks which are higher than the central ridge, with which they seem connected at the upper end of our valley. A large mass of them which hangs down over the crater, exhibits the same strata or nearly so, as are seen at Uspallata, of many different colours, and so regular, that they look like ribands sewed up together. Opposite to the crater, on the brow of the cordillera which we were going to ascend, are seen dikes, a few feet in thickness, running in several directions, some horizontal, some vertical, as the seams of a coat: they are of a yellowish green colour, and, I have some reason to think, of argillaceous slate. Had the ground been removed from them, they would have exhibited walls no less regularly built than the dikes seen in Scotland, when, leaving the firth of Clyde, the river is entered so as to pass up between the great Cumbra and the main land, which have so much the appearance of the walls of an old castle, that it is not without difficulty that they are believed the work of nature.

The Plate No. XI. is intended to give a general idea of the bridge of the Incas, of the volcano, of the upper part of our valley, and of the pass of the cumbre, which is the opening seen between two high summits: but it is from recollection only, and with an alteration in the arrangement of these objects, in order that they may be brought into view where they appear most interesting. That of the bridge will give, I believe, a tolerably just representation of its appearance, as I took an attentive survey of it, and noted down the principal features exhibited by it soon after having left the spot: but neither their arrangement, nor the number of strata in the rock which appears overhanging the crater, is offered as exact: their general effect is all that can be attempted. I was informed that if the bridge be seen when the sun first strikes its rays upon it in the morning, the beauty of the whole structure is considerably increased. The tuffa has been tested, and is a carbonate of lime.

When we got up and looked out of our vault, we had the pleasure to observe the appearance of a fine day, and were surprised to see our starved mules very high

Sketched from Nature by P.S. On Stone by A. Aglio.

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BRIDGE OF THE INCAS.

up on so steep a side of the mountain, in quest of a few withered plants which grow scattered among the fragments of rocks, that we would have supposed none but guanacos could have stood there: hunger had made them bold and nimble; we could see no trace of any thing like grass and food for them, and were going more than before to require all their strength and caution. A torrent called Orcone comes out of the central ridge near this spot, and joins the Cueva, with a good effect when the snow does not interrupt the sight of it. We soon began to ascend that part of the cordillera called the cumbre, or the summit of the ridge; and shortly the ground became so steep, and, owing to a crust of frozen snow, so slippery, that our surprise was great, when we saw that our mules could carry us and our heavy loads along it: a brow where, had we attempted not only to walk, but even to stand on our feet, we must have instantly slipped and rolled down, like snow balls, the distance of above a mile. Our Peruvian fellow traveller, who rode immediately behind me, was from time to time exclaiming "Ave Maria, qual camino!" and I, fearing lest his ejaculations should vibrate the atmosphere too much, and my mule out of its balance, was holding on it, as if an ounce more only, thrown over the right or left side, should make us both roll down to a death, which we are apt to contemplate differently, or to talk more freely of, when our passions are stirring within and warming us, than when they and our body become chilled by an icy wind and scenery. But this dangerous road, which without snow is very easy, did not continue more than half a mile, and afterwards the ascent, although steeper still, yet being more exposed to the sun, was nearly free from it, as during the last fine days much of it had melted down. The ground was very soft, consisting of broken or pulverized fragments of rocks, and we climbed up it, a few steps at a time, in order that our mules might breathe more freely. Two hours after the beginning of our ascent we reached the top of the cordillera, and found it here reduced by convulsions and disruptions to a back only two or three hundred feet wide. The ridge on each side of us rose several hundred, and farther on, some summits perhaps two thousand feet above the spot where we stood; but we had no view of Tupungato nor of any of the highest moun-

tains, and our prospect was in every direction contracted within narrow limits: on the eastern side we could only see part of the valley which we had just left, with the volcano opposite to and rising above us; and on the western, the first step of the descent into Chile, which was particularly striking; a very low pit, which, partly owing to its form, and partly to the effect of the deep snow in it, appeared as if we were going to be hurled rather than carried down into it; a narrow opening into another and lower; the lofty brink of the first, considerably higher than our own cumbre, forming part of a circle around us, and shutting out any farther view than the entrance, or rather the apparent fall into the next pit; the whole nearly all covered with a very considerable quantity of snow, which usually comes with a northwest wind, and is arrested and accumulated here by the higher ridge of the Andes. This view reminded me, in a far more extensive degree, of the pass of the Saint Gothard, which I had crossed whilst some snow was still lying over it: but the great size and depth of the well before us, and the scale of the prospect, although comparatively contracted, rendered it much more remarkable. Should we soon arrive in a beautiful vale of Urseren and at a Devil's Bridge?—I doubted it.

Were the Andes seen from the top of Tupungato, their appearance would probably change as much, as does that of the hills of Cumberland, when after leaving the fine scenery of their lakes and vallies we ascend Skiddow, and see around us numberless heaps, looking more like as many cart loads of earth, unloaded by each other's sides, than like mountains capable of affording so much pleasure to the traveller, by their variety of shapes, tints, and landscapes. The masses which formed the limited prospect before us, were more striking by the large scale than the boldness of their arrangement, and there continued to be a great want of character in their several features: they looked more gloomy than terrific, and the gloom seen became felt, as if impressively reflected on the mind of the observer, who, at the same time, experienced both a gratification in gazing at the scene, and a wish to leave it.

The deep basins below us afforded the anticipation of a brisk descent, and of a

speedy change of climate, but the sun shone so bright on the cumbre, that we felt no inconvenience there from the cold: it is during a snow storm that, in this season, the passage of the ridge becomes a trying and truly dangerous journey. The muleteer and a peon with the relay mules went forward to examine the way down, and to try the depth or resistance of the snow: we paid a visit to our provisions, and at about eleven o'clock we proceeded. The descent was very rapid but not particularly dangerous, the mules sometimes only sliding down many steps. It is here where a little more snow than what we found on the side of the first basin, renders it necessary to glide down on hides. We ourselves rode through it well; in two or three places the mules sank deeply, and required great excitement and exertions to carry us over: but it went harder with those which had the charge of our baggage, and which often fell, slipping down the steep sides of our path, lying almost buried in snow, and requiring the assistance of several men in order to be set up and on again. As we were going down in a single file, and under the necessity of stopping when an accident happened, we felt the cold much more during this descent than before; and when this ground is travelled over again without snow, it is seen how much trust must be placed in the experience of the muleteer, and in the activity of the men which was very highly displayed on this occasion, and formed a striking contrast with their natural indolence when exertions are not particularly required.

Having descended from one deep basin into another and down several of them, with very little variation in the scenery around us, we passed, at a distance of about two miles, by the lake of the Incas; the ground still covered with snow; the declivity very rapid except in crossing the bottoms of the cavities; and at six o'clock, we arrived at the last casucha on the western side, a spot called *Ojo de agua*, where we stopped for the night.

If we now retrace our steps without snow during this day's journey, we shall find on the summit of the pass, that the edge of the basin before us exhibits at a distance layers and masses apparently of a coarse sand or sand stone, and that among the fragments which have fallen from it, is chiefly found the agglomerate already

described. Many strata of the same white and grey tints as mentioned before show themselves in several high spots, and the higher stands the cordillera, the softer and more decomposing and crumbling down appear its rocks here. The yellowish green dikes, which I have already noticed as having a very singular appearance from their regular thickness and various turns, throw one of their branches out close by the ground on which we halted, and this forms a wall a few feet high across the cumbre: there appear to be others farther on: fragments are easily detached from them in thin plates, and, as before stated, I should think them chiefly of clay slate, some of which with a rather pungent odour: pieces of porphyry are also found here. On my return over the cordillera we slept at nearly three miles from the lake: I walked to it, and found it about as much in circumference; it appeared very deep, and to have been the crater of a volcano, like a *solfatara*, as the mountains around it are tinged yellow, and this colour is concentrated in many of the rocks detached from them. With some trees and an habitation, this lake would form a very picturesque object; but the only thing seen growing about it is a little grass of a brownish hue, and it is a very cold spot. I observed among the rocks near it the prettiest flower that I have seen in the Andes, and which reminded me of the Alps. This elevated part of their western declivity does not produce the same lively tints as the other. The fragments of breccia which are numerous on the ground, as far down as half way from the cumbre to the lake, appear afterwards but seldom, and the rocks exhibit in many spots, I believe, considerable masses of sienite. The crust of the cordillera continues often to show bodies of coarse sand in thick layers, which at a distance looks as if it were loose, and very like what I have seen along the shore of the Pacific Ocean, where the wind, carrying the fine particles to a greater distance, leaves the coarse near the sea side, forming there a more or less elevated ridge, which seems to be gradually arranging itself into different strata, and will perhaps show the end of a whalebone sticking out, which may be destined for the investigation of naturalists in future ages.

Early in the morning we left our vault, which to those who are proceeding

westward, indicates the approach of a more genial temperature. These buildings stand on high spots, and on a foundation which appears to be from six to eight feet above the ground: they consist of one room only, without any other opening than the entrance, into which thirty people or more might squeeze themselves for shelter in case of need. Two of them are represented in Plate XI. The elevation of this last casucha and spot above the level of the sea, might vaguely be estimated at about seven thousand feet, and at half the height of the pass of the cumbre. It is now probable that much more time will not elapse, ere some parts of the Andes of Chile be measured.

Under a sky still without a cloud we continued our descent on a good road, and very soon left the snow in the valley entirely behind us. Some lofty masses detached from the central ridge appear to have slid a good way down from it; they hang over like the high towers of a castle, battered out of their perpendicular. On our right stood unseen the high volcano of Aconcagua, which is stated to be sometimes smoking yet, but I know not how correctly. We had not ridden long before we met with quillai trees and some shrubs. The mules, by their extraordinary alacrity, manifested as much satisfaction as ourselves in going down the Andes; and to see or feel their wide and expeditious strides was the cause of real pleasure: they were on the scent of the lucern enclosures of Aconcagua. At every turn the sky before us appeared to dip so low through the next opening, that we as many times thought ourselves on the point of obtaining an extensive view of Chile, but always were disappointed; and in this feature the Andes are here as provoking as many other high mountains: another step to go up or down, but no prospect still.

Towards midday we arrived at the *guardia*, the first Chile guard house, where our baggage was visited, with politeness and without inconvenient strictness. A traveller is usually ushered out of one country into another through custom houses; an extra and introductions which are seldom pleasing to his feelings, whether he be ruffled by the ransacking of his trunks, the difficulties and expence occasioned by some trifles on which he may set a value, or, and more rationally, only lamenting

the causes and necessity of such measures. Our passports were inspected and we proceeded, having by our sides some vegetation, whose tint at a distance was more brown than green; the shrubs were parched; the trees small and few. These vallies are narrow, and down them, on the left of the road, flows the river Aconcagua, whose beginning we had seen at the cumbre, and which is joined by several streams: in one spot only it exhibits an interesting view, having there dug a long, very deep and narrow channel, through a ground which appears to have been brought across the valley by the fall of some mountain. I think that the clay slate is perhaps not so much seen in this part of the Andes as on the eastern side, but that, with the exception of the mountain of Mendoza, its northwest stratification is more conspicuous here: porphyritic rocks may sometimes be observed along the road, in regular strata, with over or underlying beds of coarse sand stone. The appearance of these lower vallies is of a softer character: in some warm and sunny spots are growing aloes and prickly pears; and although the quillai and the shrubs be not thickly planted, yet the traveller remains satisfied with what he sees, in much the same manner as were our mules with what they could get to eat, after having got nothing.

The sun had set when we reached a pretty spot, well sheltered by some trees, and close by the river whose murmur lulled us to sleep. The next day we soon reached the lower end of our winding valley, and here found natural vegetation worse, and the ground possessed by algarobs and espinos, thinly growing over it, and apparently without much intercourse with the quillais and other andine plants: the wide space between those small brownish trees was nearly bare. But shortly opened itself to our view the basin of Aconcagua, and appeared on the road the first Chileno cottages, whose inhabitants made a striking impression on me, with a stature a little below the common size in the pampas and in England; small but well turned and filled up limbs; plump faces; lively, expressive, and somewhat Chinese countenances. The inhabitants of both sides the Andes in this part of South America, except in some spots, are remarkable for the smallness of their hands and feet.

We proceeded on the brow of hills forming a part of the basin mentioned

above, which is one of the finest spots in Chile for situation and mountain scenery, and one of the most renown for agriculture. It was formerly in communication with Peru, and it is said that an Inca's road, of about two thousand miles, leads from it to Cusco. When the Peruvians pushed their conquests as far as the river Maule, they drew their supplies chiefly from this basin, which appears to be fifteen or twenty miles long, and six or eight wide. The river, which we had crossed upon a small wooden bridge thrown over two rocks which contract its channel, pursues its course to the right and through the valley, whose grounds are irrigated by it, and whose soil is very fertile, exhibiting groves of apple, fig, orange, vine, and other fruit trees: fields of lucern, wheat, barley, kidney beans, and other productions. But the cultivation of Aconcagua, famed as it is, becomes less pleasing as the various features of it are unfolding themselves: the river shows near its course the very wide and barren bed of a torrent, which takes up a considerable part of the valley: the enclosures are formed, either by mud walls often in a decayed state, or, and more extensively, by very brown hedges made of dead algarobs and acacias, heaped up together so as to make very high, massive and prickly fences: more grounds are in a fallow than cultivated state, thickly covered with tall weeds: there prevails a want of arrangement and of neatness in them as well as in the habitations, of cattle grazing, of ploughs going; and here is missed the contrast at this time, between the bright furrow of this golden soil just turned over, and the already growing corn, gradually increasing with the ploughman's work. But the fine forms, the beautiful *decoupure* of Chile, begin here to exhibit themselves with very striking effect; what is deficient is animation, and the sight of man availing himself of the handsome works and bountiful gifts of nature.

A longitudinal mountain, of a range parallel with the Andes, fifteen or twenty miles distant from them, makes the western border of a large valley, which extends from Aconcagua to and beyond Santiago, and which, being at intervals traversed or partially intersected by smaller mountains or by hills only, is thus divided into basins, the skirts of which generally consist of grounds rising with smooth and

pleasing shapes. This is a fine and characteristic feature of Chile, which renders it a country of bowls rather than of vallies. Were there moisture sufficient to assist the fertile soil in producing a strong and luxuriant vegetation, perhaps no country in the world would be found to equal this in beauty.

Our way now lay to the southward along the foot of the Andes, about seventy five miles to Santiago. We passed over the transverse mountain of Chacabuco, which divides the small basin of the same name from that of Aconcagua; and after the longest day's journey since our departure from Buenos-ayres, at near midnight, we arrived at the estate of Chacabuco, where the large house of the owner, a few cottages, and some pieces of ground artificially irrigated with a scanty stream absorbed by them, do not make a splendid appearance either in architecture, in agriculture, or in population. But this spot and its name have acquired some celebrity from the battle fought some years ago in it, between the united armies of Buenos-ayres and Chile, and the Royal Spanish troops; a few thousand men on each side: the contest terminated here, and in favour of the former, by which event Chile once more recovered her independence. We took possessio of a convenient piece of ground for passing the night, hardby a small farmhouse, whose inhabitants we roused for a supper, which afforded nothing new but some very thick and sickening wine. We had not met with half a dozen habitations during the whole of this day's journey, the cause of which must chiefly be attributed to the want of water for irrigation. No change had taken place in the vegetation, which still consisted of a few algarobs and acacias only: sometimes a yellow tint, thrown over the lower declivities, indicated the withered stems of a thin covering of wild oats and barley plants.

But if the road to this spot want water, vegetation and inhabitants, the features seen from it are such as I have found, after several excursions, to be more characteristic than from almost any other place that I have visited, of the striking and metallic appearance of many parts of the Andes: here are not observed the same exhibitions of great convulsions as on the eastern side; the ground is not so much strewed with volcanic productions; but this mountain of Chacabuco, and all the

foreground of the Andes seen from it, show in an extraordinary degree and extent those masses of a grey tint, which I have already more than once noticed: whole mountains from this spot appear formed of this rock or substance, which is in a nearly naked state: the prospect is not of high lands fit for vegetation, but of heaps of impure lead which only requires refining. A few mines may be seen from the road, and I have been informed, that lead and iron, some silver and other metals, are very extensively found in this part of the Andes. The long mountain to the southward of Santiago, shown in Plate II., is much of the same description.

On the opposite side, many spots offer a no less characteristic scene. The mountain which runs from north to south, and skirts this long valley, has all the appearance of a clay slate, uniform, and undisturbed structure; but immediately below it are hills of striking red and white colours; externally very barren, but bearing gold in their bosom: the once very celebrated mines of Tiltil lie in one of them; I have passed by that hill, and it seems essentially to differ from the mountain close to it; its crust seen from above has much the same appearance as the top of the mountain of Uspallata. Were those extraordinary grey, red and white hills or mountains others than accumulations of fish and shells, which have undergone fermentation and changes? That they were, was the first and last impression received in this country; and another which took a no less strong hold, after having seen near the sea shore the rock described in the eighth chapter, was, that in all the very numerous porphyritic fragments found in the vallies of the Andes, and particularly by the sides of streams, the feldspar in them, which so often assumes the form of thin and curved plates, had originally been the broken remains of former inhabitants of the ocean.

At the bottom of the valley and not far from this spot, is the only rock of limestone of which I have heard at Santiago, whereto, after having been burnt into quick lime, it is sent for sale and used: it forms a valuable part of the estate in which it lies: I have seen the quarry of it, which is small; and, if my memory do not deceive me, the rock is white and very coarse. The little lime which is used in this country is chiefly made with sea shells and of a bad quality: I am not aware of

any other spot where limestone is used for that purpose. Nor have I in any place, whether in the Andes or elsewhere here, seen rocks which I can suppose to belong to basalt, or only compare to it, and to what I understand to be literally meant by treppe or trap formation.

Ere I take leave of the Andes, a feature offers itself to my recollection, which may farther tend to indicate the soft nature and decaying state of their higher central ridge. In ascending the cumbre, on my return, a wide and deep channel of some miles in extent went up by the side of our path, the ground of which had been thrown over each side of it by its water, in such a regular manner and high ridges as induced me to ask the muleteer if it were a drain made for the benefit of the road; a question which, betraying my ignorance of the works of nature here, was not answered without an expressive smile: I afterwards observed other channels of a similar appearance. In this road, as in that over the Andes of Peru, described by Mr. Helms, it appears, that the western declivity of the central ridge is much more abrupt than the eastern; and from the description given of it by that traveller, I should be led to suppose, that their summits are in many features very similar to each other. I have also to state, that by bringing into view, in Plate XI., some principal objects of the valley of the cuevas, which cannot all be seen from the same spot, the bridge of the Incas has been represented higher on one side of its length than on the other, although this is not the case with the original, whose considerable width alone forms an inclined plane which follows the course of the river.

And ere the pampas be left at a still greater distance from our journey and attention, I have farther to notice a statement found in several works, and in their description of the province of Cuyo, of two rocks resembling pillars, lying between San Luis and Mendoza, one of which is described as being a hundred and fifty feet high, and twelve in diameter; and that on them have been observed figures of animals, with inscriptions somewhat similar to Chinese characters, supposed to be a work of considerable antiquity. It would be interesting exactly to know, not only what they are, but also if there be any connection between these figures and

inscriptions, those likewise stated to exist on rocks near La Paz, and those which Baron de Humboldt observed on the former high banks of the Oronoko. I must at the same time mention, that a British officer, who has made a long residence at La Paz, and has traversed the country between San Luis, San Juan, and Mendoza, in many directions, and every where enquired after objects of curiosity, has never heard of any such rocks in the vicinity of those places. There are, close by the road which leads from San Luis to San Juan, two mountains of conical forms and considerable height, called the Giants, which are shown in the Map: they may be seen from the western road, and, being isolated, have a fine appearance: but they in some degree belong to the Cordova chain, and therefore are probably, like it, of granite. To the eastward of them is the Carolina gold mine of San Luis. Many hills, both large and small, of the same shape, may be observed to rise singly above the plains in that part of South America, and their formation or probable origin might well be found worthy of investigation.

If I have ventured to mention some impressions received, I have also stated my want of geological knowledge. The former may help to convey an idea of the appearance of some striking features in those mountains, whilst an exact description of their structure can only be offered by better informed travellers. But in order to make up if possible, and in some degree, for this deficiency, I have brought several specimens from the Andes, the coast and the mines of Chile, as also of the red granite of the mountains of Cordova, and of the dark grey granite of some hills of the coast of Brazil. These samples have been divided and presented, to the British Museum, that of Geneva, and the Royal Institution of Great Britain.

We left our resting ground at daylight to the end that we might dine at Santiago, and the passage of a hill led us into the basin of Colina, where a fine opening and valley bring out of the Andes a river, which is a collection of many streams from an extensive range of those mountains, and yet so small, that after having served for the irrigation of a few patches of cultivated grounds in some large estates here, nothing is left of it. In order to increase the supply, some water is

brought from the Mapocho, by the cut called Salta de agua, shown in Plate II. We had passed by only one cottage, where we breakfasted, and observed the same features as already described; one of which, the good humoured and sparkling look of its inhabitants, was very striking. The soil of this spot is most productive, which is said to be owing to its saline nature: the cattle of Colina is perhaps the largest of all Chile. At the distance of a few leagues up the valley are the warm baths of the same name, which are frequented by families of Santiago.

The road continued to lead us through the same trees already mentioned, without any grass; numerous old stumps cut within one or two feet of the ground, by widening the barren space did not improve its prospect, but indicated that this valley had formerly been thickly covered with them: they are of a larger growth than on the eastern side of the Andes. Very few enclosures and habitations could be seen from the road, and when some lower part of the huge heaps of dead branches which fenced the grounds within allowed a sight of them, these were found neither sown nor ploughed. They had been broken up in the same manner as are many lands in this country: the algarobs and acacias are burnt or cut as low as possible, and the plough is made to turn and twist between the roots: along with the corn sown rise new shoots of the trees, and as these extend widely and are very prickly, much of the crop is naturally lost: these new shoots when too much overspread are again cut, and according as this is persevered in or neglected, the ground is at last rendered free from them or returns to a waste. But for a lay of lucern the trees are often again left to grow and spread, as by them, both the grass and the cattle are partially sheltered from the sun. The mountain which forms the western limit of this wide valley, although apparently of a mean absolute height of five or six thousand feet, sends so little water down into it, that notwithstanding its situation near the capital, the greatest part of the ground produces nothing else than wood for fuel, which is gradually decreasing, owing to the careless manner in which it is cut.

A high spot in passing through the straggling village of Colina afforded us a pleasing view of the long travelled for city of Santiago, which stands near some hills

below the Andes, in an open and level ground, extending from twenty to thirty miles on three sides of it. The groves within the city did not allow us to see much more of it than some high churches and public buildings; but their combined effect, united with that of the snowy cordillera in the midst of very high mountains of smooth forms and soft features, and of the lofty summit of Tupungato rising majestically above the whole, produced a very fine view; of some part of which the Plate II. will show the general appearance.

But here again, the sight of the smaller features, as they were gradually displaying themselves, did not correspond with the distant prospect and my expectations. The waste ground, with its few algarobs and acacias, would not part from us until they had seen us and we them into Santiago: these trees, though by degrees becoming thinner, still continued to hold possession of the largest share of the lower lands; the rest was occupied by two or three large mansions and their enclosed grounds, of which, owing to high mud walls or their distance, very little could be seen; and by small farmers and market gardeners: these are settled on spots most conveniently situated for irrigation: many of them are also found to the southward of the town, along the lower side of the aqueduct from the river Maypo, the cultivated grounds of which are described in the plan. The country residences about Santiago, which are not numerous, are more particularly found up the Mapocho, and beyond the Maypo, towards Rancagua and San Fernando, where the lands are more susceptible of vegetation and of artificial irrigation. Such hills near our road as bore a few trees, and such mountains as exhibited on their high crust the appearance of a little brown grass, looked as if claiming from us a palm for their superior vegetative powers. At last and very near the city a real village was met, and with it signs of more animation: if we had not been able to see the vineyard, yet we here espied some of its red grapes, with which our thirst during the last eight days was finally and effectually quenched; and which, although a little dried and shrivelled at this time, we found of a very sweet and fine flavour.

The few inhabitants seen in our way continued to be tolerably well dressed;

some men with ponchos, others with trowsers and jackets only; women with garments made of a blue woollen stuff, or of British and Indian calicoes; many with bare feet, which, being dirty, it was less offensive to see naked than to imagine so under clean shoes and stockings: all of a rather pleasing appearance: but the houses and the grounds were unseemly, and the entrance into the suburbs of Santiago was not in any manner that which might have been expected to lead into a large capital. Many habitations at first made of reeds and mud, were now replaced by a more general construction of adobes; tiles were substituted for thatch, and a solid bridge of bricks over the little river Mopocho led us into the city, whose streets are nearly forty feet wide, some of which with footways on each side, and whose low buildings, with very few exceptions, are of adobes: nowhere any magnificence but generally a neat appearance was exhibited.

We rode to a British hotel, the only one in the place, where, for thirty dollars a month, a small room and four very abundant repasts a day may be had, and where we found a numerous assemblage, just sitting down to dinner at three o'clock, of Chileno and foreign officers, travellers from Valparayso, and other guests. The inhabitants of this town, who may be estimated at about forty five thousand, including those of its scattered suburbs which cover an extensive ground, offer themselves in two distinct bodies; the wealthy and all their relatives and connections, who possess the land of Chile, its trade by their shops both in the town and in their country estates, and the places under its government; and another class of the rest of the community, consisting of smaller tradesmen, publicans, artisans, and labouring peons. The former class, nearly all composed of creoles, is not numerous, and is neatly or elegantly dressed. The latter is also chiefly of the same origin, with a little mixture of Indian and other bloods. They are all of a good appearance, exhibiting fewer men so tall and stout, and fewer so small and thin, as are generally observed among the population of several large capitals in Europe. Here may be found about a hundred British settlers, principally merchants; and perhaps thirty North Americans, Germans, or French. But Santiago was at this time unusually full, owing to

the expedition which was preparing against Peru, in which were many officers, chiefly British, who had served in Europe during the late wars, and came here with the army of Buenos-ayres. The principal families of Chile very readily admit, in their dress and furniture, the last fashions of Europe with which they are made acquainted, when importations from thence or from Asia, and their fortune, afford the means to adopt them; so that in parties and public exhibitions, the difference between their appearance and what I had left in Europe, was not so considerable as I had expected to find it.

Were it not for the thick crust which the self-interest, the forms and fashions of the world, cause to grow over the human mind and body, a traveller might, by means of a graduated standard, attempt to judge of the inhabitants of a large capital, in much the same manner as an exciseman does of the strength of spirits by his hydrometer. The theatres and their exhibitions would enable him to form an opinion of the moral, rational and lyric taste, of a considerable portion of a community: other entertainments and meetings, whether public or private, of its intellectual faculties; how exercised and applied: a few visits to the most considerable assemblages of a people, when engaged in the performance of its duties or in the pursuit of its pleasures, might suffice to show the specific gravity of the spirits called forth on such occasions, and if they be above or under proof. But that crust and covering, within which they are kept, cannot easily be removed or defined. The impossibility, therefore, of acquiring and applying some general rules, by which to test a nation, renders a comparative description of its merits and defects a very difficult and arduous work, which I must leave to those who may feel able and willing to undertake it here: to observe families when at home and left to their own resources, and to follow them abroad; to watch the time when they put on the dress which they think most fit for the promotion of individual interest or the display of superior fashion, and when they cast it off; to find out what they do naturally, and what affectedly; where and how they are most entertained or most tired, at the playhouse and other public exhibitions, at the large assembly, in the crowd, or when alone: whether time be usefully passed with them, or knocked off as if it were an intolerable

companion, incessantly returning to oppress and not to benefit: if women share along with men all possible opportunities for the exercise and improvement of mental powers and knowledge, and for keeping gently fast the bonds of social intercourse, so apt without their presence to be rent asunder, or to contract within the limits of sensuality and vice; or if men, assuming over the female sex more privileges than nature and the good of society have intended for them, exclusively reserve for themselves the discussion of what they think more important subjects, and by establishing the right and fashion of engaging separately in them, often and gradually teach women how to be contented with the right and fashion of engaging in trifles: what portion of time is devoted by both, to the fulfilling of that most imperious duty towards society and the tender growth of a new generation, its education. Of a few of the numberless features which, for such a purpose, ought to be well observed, understood, and compared with those of other countries, I can only attempt to offer the outlines in the progress of these travels.

Here is a playhouse, which may probably contain about eight hundred people. The performers are Spanish prisoners, and, as far as I could judge, are much in want of models and tuition. The audience offers a very good, I might say a brilliant, exhibition. I observed the first tier of boxes, which are private, well filled with women of a ladylike appearance, of genteel figures and manners, with a good complexion and tasty head dress, some dark, some fair, all elegantly attired. At a distance the effect was in a considerable degree English. Their dress was less loaded with ornaments, and, I thought, looked the better for their absence. In the pit were the *tapadas*, or such ladies as not having boxes, or not chusing to dress again, go there *incognitas* with a shawl over their head. Men were well dressed and of a gentlemanly deportment. Tragedy is much preferred here to comedy, and perhaps because, on such a stage, it is the kind of drama which is susceptible of most effect.

The *Tajamar* or public walk is very much frequented, in the morning or evening according to seasons, but the evening exhibition is the most brilliant. The Andes form a fine view from it. The Plate XII. shows the arrangement and effect of the walk. On the left is a stout parapet wall, well built with bricks, which

Sketched from Nature by P.S. On Stone by A. Aglio

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TAJAMAR, OR PUBLIC WALK.

BOMBAY

protects the town from the overflowings of the river Mopocho, whose banks are there very unsightly, as are likewise the habitations near them. The walk is both on the parapet and between two rows of irrigated Lombard poplars: on the right is a prolonged seat, and most of the walkers are passing in front and close by those who are sitting: behind this, more to the right, are some confectionary shops, and what are called here *chinganas*, whose exhibition is rather that of French *guinguette* than of an English tea drinking house, but partakes a little of both. The chinganas are filled with all classes of a people who as yet requires but little to be amused: in every one of them is a set of female singers: a harp is played for accompaniment, and on its large hollow body another female with a stout hand beats a burden which is peculiar to this country, or rather, I may perhaps say, to music of Moorish origin. From time to time they strike up for a short dance, which is constantly the same, and a little similar to a Scots reel, of which the chief skill is to beat the ground with the feet to every note of the tune which is of quick time, and to wave with the hands a kerchief seldom neat enough to improve the effect. Different drinks are called for, and at ten or eleven o'clock the parties generally break up. I have often been there, and never observed the least want of good and decent manners among the people, whose chief amusement appears concentrated in these places. The ladies of Santiago are fond of going to them and looking on for half an hour, but they often appear divided between their rank and their inclination: although decent places, yet they are unfit for them, as there is nothing to be seen or heard, which can interest or amuse women who must be presumed to possess higher intellectual faculties. Many families here keep a small carriage, drawn by a mule; and though the body of it usually looks as having carried many generations, and the wheels to have revolved for ages, so soon is the mind brought to judge comparatively, that many weeks did not elapse, before the exhibition impressed me with as much distinction and gentility as the most splendid equipage could have done in Europe. These carriages, if not breaking down in the way, are often sported on the walk, where they form a long row in the manner seen in the Plate; generally holding two ladies, who sometimes alight from them to mix with the walkers.

If we now follow a family from the walk to a tertulia or evening party, we shall enter a spacious apartment, decorated with a mixture of old Spanish with modern English or Asiatic furniture. The women, whose persons do not detract in the drawing room, from the graceful comeliness shown at a distance, will sit down and display a listless and infantine disposition to cheerfulness, expecting a marked attention from the men engaged in speaking to, rather than in conversing with, them; but not requiring much to be pleased and to laugh at what is said. Some men will gather up together, perhaps furtively smoke a cigarita, and talk on politics, whose range does not comprise much more than Lima, Buenos-ayres, and Chiloe; beyond which are regions, known to them about as much as Tibet and Japan are to us. A British, North American, or French ship of war, seen off the coast, or a large cargo of merchandise just arrived, may contribute to enlarge the topic, which is besides alimented as with us with conjectures, surmises, and unfounded news, now dismissed and now revived, as long as the event, keeping back, is sporting with the foresight of the politician. To recruit the strength of imagination at the expence of animal spirits, a lady will sit to the piano and a dance begin; sometimes a minuet, indifferently performed, but more commonly what I have already described as in some degree similar to an English contredance, most gracefully acted: a burst of loud but good natured merriment may be heard from the Chileno ladies, at the awkwardness of some foreigner, too old or too stiff for the airiness and pliancy required. This ended, the talk is resumed, and after it again the dance. At about ten o'clock the company breaks up, and as to refreshment, all that I ever got or saw distributed, were some pieces of plain biscuits, and these only once: it is very justly expected that society should be frequented for the sake and pleasure of it, and not for eating and drinking. I conclude this long chapter with Plate XIII. which represents a tertulia, in the house of a very hospitable family of Santiago.

Drawn on Stone by C. Scharf.

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TERTULIA.

CHAPTER XII.

DEPARTURE FROM SANTIAGO, AND ARRIVAL AT VALPARAYSO.— JOURNEY FROM THENCE TO COQUIMBO AND GUASCO.

THE day after my arrival at Santiago, I left it for Valparayso: the distance is about a hundred and five miles, and the journey sometimes performed the same day in thirteen or fourteen hours on a good horse. British traders, naval officers, and masters of ships, are the principal travellers on this road, and several of the former keep horses at lucern grass about midway, for the purpose of more expedition. Under the Viceroyalty of Don Ambrosio O'Higgins, an Irishman, the father of the present Supreme Director of Chile, several of the most useful public works seen here took place: the canal from the Maypo; the parapet wall and public walk along the Mapocho; and, among others, a wide and good carriage road from Santiago to Valparayso. The conveyance of merchandises on this road is effected both in carts and on mules, according to the nature of the articles. With the exception of this tract, the vicinity of the capital and of some few of the largest towns and estates where the ground may be fit for carts, and chiefly owing to the mountainous form of the country, mules and asses are the general carriers of commodities: another cause of this is the want of bridges, or the slight construction of the few existing, most of which are suspended and consist of hide ropes and reeds. The carts used in Chile do not differ much from those already described; but many are without tops; they have double fellies or rims to the wheels; their fashion is of the roughest kind, and their oxen are exhilarated by a music from the axletrees, full as loud and creaking as that heard on the pampas, without being under the constant dread of the overhanging and goading long pole, though not much better used by the small one, handled by a driver seldom otherwise than very unmerciful.

Only possessed yet of some of the most necessary expressions in the Spanish tongue, I was under the protection and guidance of a muleteer, and we had no sooner left Santiago than we were again in waste lands, very thinly covered with algarobs and acacias, the company of which, I began to suspect, was not to be lost in this land. At night we found in a hut, and around the fireside, a numerous fat and cheerful family, a good supper, and on the ground near it a resting place. The next day, after meeting with very few habitations, and some small enclosures, chiefly of lucern lays for the keep of the beasts employed on this road, we arrived at Casa Bianca, a village near which are some private estates, more water and cultivation, and in which a small inn is kept, where we put up, and in every thing regretted the hut for a repast, and the bare ground for sleep: three foreigners going to Santiago arrived here late, one of whom, drowning in wine all reason and politeness, made during a great part of the night much noise and disturbance in a room necessarily common to all; and a light fare was followed by a heavy reckoning. This place is about thirty four miles distant from Valparayso. Some more vigorous and verdant vegetation, seen early in the morning through a thick fog, was shortly again lost, and we got to a barren table land, of a displeasing aspect, but where, with industry and a proper agriculture, sufficient water might be collected for much cultivation and population.

The mist disappeared in time to let us obtain as early a view as possible of the Pacific Ocean, the silvery blue colour and seeming stillness of which, only seen through two or three fine glens of the hills whose declivity towards it exhibited various pleasing forms before us, rendered the prospect very magnificent. There are travellers who would have been moved to tears, by this beautiful exhibition of a sea so distant from Europe, so renowned by the voyages and discoveries of celebrated navigators, and forming so interesting a feature of our world; but there are minds also, which, by the gradual operation of age or circumstances, become almost inaccessible to feelings, the knowledge alone of whose existence they retain; the ride had been cold, and I hailed the sun with a more lively and agreeable

sensation than the water. The contrast between the green and the decided red and white tints of bare spots was remarkable, but lost as much by a near view as it gained at some distance. What little water flows in streams over this table land, is in a great part evaporated before it reaches the declivity of the hills, and neither on the former nor in going down the latter were habitations seen: all was dreary; and my disappointment increased by so great a want of population and life on the principal road of this country, and on the approach to its chief port.

From Santiago to the western edge of the table-land, if on the whole there be any descent, I should think it very inconsiderable; but from hence to the bay of Valparayso, it may be somewhat more than fifteen hundred feet. We had passed over two mountains, chiefly of argillaceous slate I believe; and, until we reached the table land, the principal features of the country were much the same as those of such part of it as I have already described, but more contracted by small mountains. I observed in both those over which we had travelled, and more particularly also in the hills near the sea, a vast number of small, regularly shaped and inlaid fragments, forming in various directions lines, which looked, but on a comparatively very diminutive scale, like the dikes seen on the cumbre of the Andes; they were in many places so small, and ran across the rocky or earthy face of the ground in such order and arrangement, as to have the appearance of rows of teeth or of neat seams: they seemed to bear the character of quartz, feldspar, or carbonate of lime; but this is stated merely to describe their aspect: the extraordinary symmetry which they exhibited rendered them very remarkable, and, connecting them with what we often observe in Europe in sections of chalky or other soils, tended to create an impression, that by some slow fermentation, earthy substances are gradually and imperceptibly separated, and arranged according to some laws of nature.

Valparayso stands immediately below the hills just described, and along the shore of one of the largest and finest bays of Chile, which opens to the northwest, and of which no part is sufficiently sheltered to prevent mischief among the shipping during the heaviest winter storms from that point, or when, in summer, the

southerly afternoon breeze comes on with very sudden violence. It is however probable, that with the requisite expence and labour, a safe harbour might be made here. The view of the bay, and of the hills which skirt its very narrow beach, seen either from the sea or the shore, is fine, as those hills rise above it with a steep ascent, and are intersected by a considerable number of little glens of very pretty forms: but the lack of moisture and vegetation is great; neither trees, cultivation, nor habitations, are adorning the brow of this great amphitheatre, which, with only a very partial and scanty covering of plants, is almost wholly left in an unprofitable state. A small portion of this bay, where the shore is less contracted, and which has the benefit of a stream during a part of the year, exhibits a few inconsiderable fields and gardens, whose near view, however, affords no other pleasing feature, than the early and short lived blossoms of several fruit chiefly almond trees, which have caused the name of *Almendral* to be given to that spot. It is extraordinary that the lively interest and enjoyments felt in drawing and setting forth the beauties of nature, should not yet have made any impression here; they appear to be every where in these countries either unheeded, kept confined within high walls, or overpowered by too great a contact with extensive waste lands.

Valparayso and the Almendral, whose extreme distance is about four miles, are said to contain about three thousand five hundred inhabitants, and appear to bear out that number. Several convents in them, formerly of Jesuits, are now occupied by very few monks of other orders: these spacious, gloomy and nearly deserted establishments occupy a considerable portion of valuable ground, in a spot where the inconvenience of a very narrow shore is daily more felt. The foreign commerce of this chief port of Chile is principally carried on by British merchants, some of whom constantly reside in it, and some occasionally come to it from Santiago. Five or six of them have married ladies of this country, and their children are the beginning of a new race here. There were in it, in the year 1821, ten or twelve English ladies, most of whom married, not long before arrived with their husbands, and were residing in Valparayso and its vicinity. Few Chileno families of opulence are

to be found in this port, as the course of their trading pursuits now seldom leads them this way. The means of communication being necessarily very much contracted here, the daily intercourse of inhabitants, of market people from the nearest towns, and of officers and crews from the ships in the bay, often appears considerable. The habitations extend a little way up some glens in the hills, where thin streams furnish sufficient water; and the most abundant of these is brought down into the market place. By draining the table land above them, much more of it might be procured. Several small eating and coffee houses are kept, where a lodging room may be had: but no literary establishment has yet been formed either at Santiago or in this place, and when some English newspapers are accidentally brought by trading vessels, they are circulated among those who wish to follow the thread of European events. At Buenos-ayres, the British settlers have a set of subscription rooms for this and other purposes.

Winter was near, and some storms from the northwest had been experienced, which at this season usually bring rain to the lower, and snow to the higher, lands of these and the more southerly parts of Chile: the wind from that point comes on after a long, dark and hazy warning, which is of a very threatening appearance, and causes the vessels in the bay to prepare as well as they can against its effects: but the rain seldom continues many hours during the storm; the clouds break off at intervals, and I do not think that I saw more than two or three winter days pass in this country without sunshine: in other seasons none such occurred. During the first weeks of my residence in this place three earthquakes were felt, one of which was sufficient to awake me in the night, and to make the timbers of the house yield a sound much like that of a child's top. Many people, I heard the next morning, had left their dwellings, a precaution often taken here on those occasions, of which I was not aware: but such small shakes are so frequent, that the alarm occasioned by them is not great.

The storms had subsided, the brown hills had assumed a somewhat verdant dress, and in the middle of July I left Valparayso for Guasco, a journey of about

six hundred and thirty road miles, which is usually performed on mules, but sometimes on horseback by those who can change horses in the way, or have some led along for that purpose. One mule carried two leathern trunks with bedding between them; a peon and myself were mounted on beasts of the same kind, of which another set was led for a change. Travellers will sometimes provide themselves with a tent, a bedstead and other luxuries. A ride of about twenty miles, over a country nearly all waste, brought us to one of those few large vallies of which some description has already been given, that of Quillota, in which runs the river of the same name, bearing farther up that of Aconcagua, and which therefore opens into its basin. We found, in our way across it, a hamlet, the smaller part of the lands enclosed and cultivated, and the greater covered with willow brush wood of slender growth, a plant which, in these vallies, appears to have taken possession of such lower waste portions of them as are moistened by their rivers, and which at some distance often gives to their landscape a dull greenish brown aspect: this covering is intersected by naked spots, which only exhibit rolled stones; and it is, therefore, when the bright green of some lucern or otherwise cultivated grounds happens to offer a sudden contrast with the waste lands above the vallies, that the arrival on the edge of them becomes but really pleasing. Sometimes the pleasure afforded by this unexpected change is heightened by looking up the vale, and seeing a fine arrangement of fore and back grounds, formed by the lofty chain of the Andes and the mountains below it. We forded the river Quillota, the passage of which, at this time, usually requires caution.

The disposition of the man who was to conduct me, and my little progress in the Spanish language, did not make me expect a pleasant journey; but, on the first night of it, I was fortunately joined by a Frenchman engaged in mining pursuits near Copiapo. The company of this gentleman, who, of an ancient noble family, was travelling with his own peons, horses and mules, had once wrought a silver mine in the Alps, and possessed extensive information, was the source of much pleasure and service.

We soon reached the estate of Quintero, which now belongs to Lord Cochrane, and crossed its small river: the mansion lies farther down it, and could not be seen. Between this valley and that called Ligua are some pretty spots, which consist of small hills and dales of smooth forms, covered with various kinds of trees, more vegetation than hitherto seen, and this of a more agreeable verdure. Below the hills, in much contracted places, were several habitations, small farmhouses, with some cultivated ground near them. A horse, with saddle and under trappings, which in this country are usually covered, first with a sheep skin, the fleece of which is died blue, and next with an ornamented piece of brown leather, stood at almost every door, waiting the pleasure of his master, who seldom contributes to render the scene very active, and never uses his legs for more steps than he can help. The ride over this tract afforded a variety of pleasing and characteristic near views. We often passed among our faithful forest trees; but the algarob was gradually leaving possession of the ground to the acacia. High and broad massive heaps of both, raised or piled up in rows so as to form fences, marked in some places the limits of private estates; and two mansions, close by which we passed, had, chiefly owing to a want of arrangement, the appearance of being in a dilapidated state. A few excavations observed at a distance indicated a search for gold in several spots; and I was informed that it existed in most of the hills, in more or less abundance, and sufficiently to employ hereafter considerable numbers of people, if more encouragement were to be given to that pursuit, and a material increase of population to take place. From this lower road the Andes can very seldom be seen: there stands below and along their chain a remarkable mountain, of great length and barrenness, apparently of argillaceous slate formation and of a regular stratification, perhaps six or seven thousand feet high, whose tint at the approach of sunset was that of coppery indigo and very beautiful; but both the object to look at, and the spot to look from, were too naked and barren. This striking effect was probably owing to the highly burnished surface of the clay, which, in the Andes and elsewhere in this country, is often such as to exhibit a metallic appearance.

We crossed the river and the large valley of Ligua, at some distance from the little town of the same name in it, and the road led us close by the sea shore, between small mountains or high hills and creeks whose fine breakers, insensibly drawing the mind to the contemplation of each successive wave dashing against them, excited a feeling of unavailing curiosity to know how long those rocks had performed their present office. But, notwithstanding the season, no rivers were running down the lower mountains: if we sometimes crossed the old bed of a torrent, it was either without water, or with a stream advancing almost by drops; and within a few steps of the ocean, the ground and its stunted vegetation were still deprived of moisture. Except, therefore, in the chief vallies, habitations were seldom seen. Our rate of travelling was about sixty miles a day, which could not be followed without speed, nor exceeded without knocking up all our beasts, of which the horses fell lame about midway. At break of day, some sticks and mule's dung being heaped up together, a fire was lighted for the purpose of preparing in horns an infusion of hierba mixed with tea, to which was added goat's milk when it could be got: that of cows was very seldom to be obtained: the inhabitants are not in the habit of using milk with their matés, and when deprived of hierba they substitute a particular root or some aromatic plants for it. Towards noon we generally found, in the first habitation that offered itself and on the fire ready cooked, a large pot full of kidney beans, wheat or maize, but more commonly of the former; sometimes dried beef: and if tempted to a full stop by a kid or lamb tendered for the spit, much time was then lost, for the beasts once unloaded, and the peons stretched on the ground, these must have their siesta. At night, the fire again lighted, the resting place swept and got ready, matés drunk in the most resting posture, sleep usually stood by us, ready to check any feelings of impatience at the time required for preparing supper. Here also was this the most splendid repast, which commonly consisted of a fowl soup with onions, gourds, cabbage or maize, and red pepper, followed by a kid or perhaps a lamb roasted: sometimes eggs would make an hors-d'oeuvre to the two courses, dried figs a dessert, and a little

Chileno wine be sent for from the *tienda* or country shop, if any, where small wants of almost any kind may be supplied. Our chat with the good humoured cottagers, by their own fireside, was rendered more interesting to them when, opening the hierba and sugar bags, we presented them with some of each.

The next broad vallies in our way were those of Longotoma, Quillimari and Chuapa, in which run the little rivers and stand the villages of the same names. Quillimari is a fine spot, near which a few small vessels may safely anchor. At Chuapa we had performed more than half the way to Coquimbo, and, leaving the lower road, we rode up the valley in order to meet the upper, which leads along the Andes from Santiago, but still at a good distance from their base, through several mining districts, and a very interesting country which every where exhibits the fine forms of the lower mountain scenery of Chile. We observed in this valley, along the old and high banks of one of those immense bodies of water, which must formerly have filled these wide channels and run down them a very majestic course, many spots where the ground had been excavated for gold by lavadores or washers. There was every where a very considerable depth of rolled stones, and we went along some parts of the former banks, which were shelving down in regular shapes; a work which, if not of the water, must have been that of ancient inhabitants for the purpose of irrigation, and would then indicate a population far more numerous and active than the present.

About twenty two miles up the valley stands the little town of Yllapel, in which formerly resided many good families of small fortune, but which now contains very few: the whole number of its population may be estimated at seventeen hundred; and though there be other places from hence to Coquimbo which bear the name of towns, none of them deserves it yet by its magnitude. Along this and the lower roads, is the chief number of inhabitants in Chile north of Santiago found settled: the upper, from the capital to this spot, at first runs nearer to the foot of the Andes, and passes through Aconcagua and Petorca, the latter of which small towns may contain about two thousand persons, many of whom are principally engaged

in mining for gold. About Yllapel are bred some of the finest horses in this country, which are chiefly bought by the British settlers and naval officers, for their rides, and for the races which are occasionally taking place at Santiago and Valparayso. The price of the best horses is from sixty to eighty dollars each; but others, sound and of a good size, may be purchased for twenty; mules for ten or twelve. Several people here are also occupied in mining. We were politely entertained with a dinner, a dish of which consisted of stewed sea weeds, more wholesome than palatable; and this ended, we continued our journey.

The road sometimes led us to spots, where some weak stream caused small trees and shrubs to look of a pleasing green; but the hills and mountains had a most thin and partial covering of scorched plants. The algarob had nearly disappeared, and the acacia remained in possession of some tracts, along with aloes and prickly pears, often rendered of a very disagreeable aspect by having been burnt for the sake of goats. We had not seen a palm or any other fine tree yet; and what there was of vegetation, when viewed at a distance, mostly looked very like lands covered with brown heath, as the tints of the small and scanty leaves were overpowered by that of the stems. Hitherto we had only met with two or three thin herds of wild guanacos, a few flocks of goats, and some solitary cows. In our farther progress northwards, still less of animal and vegetive life was to be expected.

Here and there a corn field seen on the brows of mountains, at a considerable elevation and where there could be no artificial irrigation, excited my curiosity, and I was informed that it was a precarious experiment in agriculture, made of late years, on those high spots where their shape and situation are favourable for receiving what moisture may descend from the summits above them, and fit for the plough: a piece of ground is there broken up, and wheat or barley sown in it, whose growth depends on the more or less rain in winter, and the time when the showers happen to fall: I was farther told, that the cultivator was satisfied if he got a tolerable crop out of two or three ploughed and sown for, though the others should not yield him any thing, so little are the labour and seeds required, or their value here, the expence

Sketched by P. S. On Stone by G. Scharf.

PLOUGHING.

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of irrigation being saved. Oats, which are not cultivated in this country, would probably be a great benefit to it; for, when it becomes necessary to give barley to beasts of burthen, they often are hurt by it: I heard that they had lately been tried without success; but they were probably not sown in lands fit for them, and there is every reason to suppose, that in many elevated, cold and moist parts of the Andes they would thrive well, as the abundance of wild oats there seems an indication, that if cultivated they would bear kindly.

We passed by a field where ploughs were at work, and of which a part had recently been broken up. Tillage is performed here in a very saving and expeditious manner. The plough only consists of a pointed piece of wood, whose body, having neither share, mould-board nor rist, and being somewhat similar to a potato plough, makes a drill four or five inches deep: a handle, either quite upright or bending backwards, is fixed to the heel of the plough, as is likewise a shaft or pole which rises diagonally, and is fastened to the yoke of two oxen: the whole is conducted by one man only, who with one hand holds a thong or rein tied to the horns and a goad, and with the other the handle. It was in Scotland where I had hitherto seen the most expeditious ploughing effected with two horses; but the Chileno ploughman drives his oxen still faster than the Scot his horses. The furrows or drills are crooked, and give to a field an appearance very like what is shown in the plan of Santiago: the land is not thrown into ridges; and the channels for irrigation, which with a better implement might be made of a sufficient depth by it, must afterwards be opened with the spade. Sometimes the ground is sown after the first ploughing, but it is more commonly cross ploughed before the seeds are deposited, and they are afterwards harrowed in with a bush of branches from algarobs or espinos, which, hard and thorny, are very fit for that purpose.

The Plate No. XIV. shows two ploughs and ploughmen of Chile; the one at work in an old, the other in a new piece of ground; but many ploughs are still smaller than what is here represented. A peon is eating water melons, another lighting his cigar. Men of almost all classes are always provided with macerated

tobacco, and with paper, the poorest peons with leaves of the maize plant instead of the latter: from them they tear a piece, in which they fold the tobacco and make a small roll of the whole: these cigars, being loosely made, require to be constantly held between the fingers, to prevent their opening, and the tobacco dropping out: the work in hand is thus often impaired, and the time spent by the labouring classes in this enjoyment is beyond conception until witnessed and summed up. The paper fit for cigars must be manufactured with linen rags only: it and tobacco form a very considerable branch of the retail trade of South America. The peasant of northern Europe, with his bent and hanging pipe, can work and smoke at the same time, but the South American cannot well do both.

A quadra of land is 22,500 square varas, or 20,833$\frac{1}{3}$ square yards; 1473$\frac{1}{3}$ yards above four English statute acres. In this are sown about 2$\frac{1}{2}$ fanegas or 375lbs. of wheat, and 2 fanegas or 300lbs. of barley; which, at the mean rate of 62lbs. and 58lbs. the Winchester bushel, is of wheat a little more than the half, and of barley less than it, of what is commonly sown in England. The sower only walks once over the field. Hence it is, that the returns of the best crops here appear considerable. I at first was much puzzled about this, as I could not disbelieve some information received from small practical farmers, and yet could not make the appearance of any field, ready for the sickle, bear it out, until I thought of enquiring about the process of sowing, or saw it. The corn plant grows and spreads out, in this country, into so large a bunch and so many stems, that the thinnest sowing is sufficient if the seed be good. The lands of Aconcagua, of Colina, and of some other best cultivated spots, yield, when crops are fair, fifty or sixty fanegas of wheat and somewhat less of barley a quadra; between about thirty and forty bushels an acre; or from twenty to twenty five grains for one sown: but I have reason to think, that the greater part of the lands which I have seen, does not yield much above the half of that return; and I have passed by many corn fields so thinly planted, so small in ears and straw, and so foul, that I could not suppose their crop sufficient to exceed that of the labour and the seeds. I ought at the same

time to observe, that in this year, 1820, and in some spots, the corn had partially suffered from the blight, but that I kept this accidental defalcation out of the estimate, when made from the mere appearance of the fields.

The corn in Chile, notwithstanding the fertility of the soil, is a long time advancing to a state of full maturity and reaching it: the great progress which the plant makes soon after its rise above the ground is such, as would induce an expectation that its seed would ripen early in the spring; but, feeling no doubt the want of manure and of a better culture, there is not sufficient strength of vegetation to cause the grain to be fully ripe, in less time than nearly what is required in the southern parts of Great Britain, the middle of summer: and if the weather be not throughout favourable, it is apt to become diseased and injured; whilst, with such a fine climate and soil as these, a more skilful and liberal agriculture could probably obtain two good crops of corn within the year, and an increase of produce of which the inhabitants have no conception. The blight of one year will sometimes occasion the failure of the crop the next, owing to the use of bad seeds; and what originates from a want of attention and care only, is wholly attributed to unkind seasons. In the latter end of January or beginning of February, the corn being ripe, the harvest usually begins; but creates as little bustle as the ploughing and sowing have done, which leisurely take place in autumn, winter, or spring, as may be most convenient to the cultivator: for, as the grain under this dry atmosphere does not fall out, it is left standing until it also suits him best to reap it. I was at Aconcagua at a time which, within five days, corresponded with our Michaelmas, and there saw a field of wheat not yet cut. Though birds are not very numerous in Chile, yet enow, chiefly parrots, exist, to eat much of what is so long left exposed to them. The oldest and most generally cultivated wheat is a bearded species called *candial;* the bread made of it is not fine, but is preferred by the labouring Chilenos to a better kind made from an unbearded white wheat, which, I was informed, had not long been introduced, is chiefly cultivated for exportation and the consumption of the foreign shipping or of the wealthy families, but does not yield so much as the former.

Lucern is commonly sown with wheat, and ripens with it, by which means the straw is greatly improved for fodder: if a lay of it be afterwards intended, it only requires irrigation, and may be left to itself twenty years or more; if not, the land is fallowed a year or two, and the very tall stout thistles and weeds which immediately take possession of it, seem to indicate that the system pursued is defective: one single seasonable ploughing in the fallow year might probably rid the land of that incumbrance, and prevent its being thus fouled and exhausted: but this is only a conjecture; the results alone of experiments, in this peculiar soil and climate, could decide on the expediency of it. Wild turnip and other plants are allowed to grow with the corn, often in considerable abundance; the thistles, however, must be hoed off, else all other growth would be overpowered by them.

The sheaves are brought to a level piece of ground, where they are suffered to lie till it is convenient to get the grain trodden out, which is effected by unshod horses, much in the same manner as is done by oxen in some European countries. The straw, broken into chaff by this operation, is separated from the wheat by flinging the whole up to the wind or by fanning; and when wanted for the manufacture of adobes or plastering earth, the long chaff is taken off for that purpose, and the small used for beasts of burthen. The corn is sifted in a long cylindrical wire sieve, and the lucern which comes out of it in great quantity, if worth the labour, is partially cleaned from earthy dust and lighter mixture by flinging it up against the wind. The afternoon breeze seldom fails to come and perform such offices as may be required of it, in this land of primitive expedients. Wheat is usually so dry, particularly after having been left long exposed in a state of maturity, that it requires to be moistened ere it can be ground. Barley is, I believe, wholly reserved for beasts: I never met with any bread or cakes made of it: chaff is commonly mixed with it; but the plant is often cut green, as it is more forward than lucern grass, by which it is afterwards replaced in the market till the following winter: these are brought morning and evening to every town where horses and mules are kept. In only one estate, and very near Santiago, did I observe dried

lucern grass, which was thrown into a very large heap and preserved for the winter: it is probable that with some care and skill, excellent hay might be made of this plant.

We were crossing a stream in a small lonely valley, when we heard the strokes of the mattock, and found an old man, a lavador, digging and washing for gold: but he did not appear thriving in his pursuit; no golden harvest shone on his ragged garments, nor was there any other indication of reward for the hard toils, of which his wrinkled weatherworn face and his exhausted body manifested the effects. I was told that these people, taken generally, seldom got more than a scanty daily subsistence: this, however, only applies where there is not a proper distribution of labour; half the time of this poor man was spent in laying down some tool and taking another up, and these were in a bad state. The hope of meeting with a *pepita* or lump of gold sustains the exertions of the lavadores, and though the wheel of fortune now seldom realizes that expectation, yet it never performs its daily rotation without granting some greater or lesser prize in the soil. The auriferous earth dug out is separated from the stones, and put into a horn or wooden vessel, in which it is stirred and shaken under a stream of water, a sufficient time to allow the gold alone to remain at the bottom by its superior weight, and all other matters to be gradually washed out; but many of the smaller particles of it likewise escape and are lost. Another method of washing for this metal, which is said to be better, is by means of an inclined plane, over which are spread sheep skins, where the separation is effected. The gold thus got, which is of great purity, is put into small bags and sold to merchants. Less of it is commonly obtained by washing than by mining, crushing the ore, and amalgamating the gold in it with mercury.

We arrived at Los Hornos, a copper *ingenio* or smelting work, where we found the steward and a dinner. We have already seen that the selection of a spot fit for working a copper mine in this country was not easy: a vein of ore rich enough and lying sufficiently near the surface of the ground; wood and water not too far distant; conveyances not too laborious for them, the ore and the metal; these are the requisites, and advantages which, in this dry land of mountains and bowls, are

gradually becoming less united. I have often heard that with many mines, the largest portion of the value of the copper obtained from them was absorbed by the conveyance alone of wood and water, chiefly owing to the number of people, and the many mules and asses, which are required for this service. A vein of ore which does not yield above fifty per cent of copper, generally offers no inducement to open a shaft for it.

The ore is brought out of the mine in hide boxes, each of which, though of small weight for one person, requires two men to load and one to carry: when the ground admits of it, a hide is loaded, dragged to the place of discharge and upset. Such are the means of manual carriage very commonly used in this country for the most extensive works and laborious purposes, by which much time is wasted; and I have not any where met with a hand wheelbarrow. The copper ore is broken, likewise by manual labour, into pieces of one or two cubic inches, and what does not appear to hold sufficiently of metal for rendering it worth smelting is thrown aside. Unless the furnace be very near the mine, the broken and selected ore is brought to it by asses; and if the produce of many mines be smelted in the same furnace, the ore from each usually forms distinct heaps before it, for the purpose of constantly ascertaining the quantity of copper which they respectively yield.

The smelting furnaces are constructed with adhesive earth or adobes; the lower part of them is hardened by a coating of calcined bones mixed with gypsum, and the bottom is made to incline towards a kind of trough close by the tapping place. Most of them are entirely open at top. Within them a pile of alternate layers of wood and ore, four or five feet high, is erected; and as these are burning and melting down, more of both are put on, so that the operation may be continued an indefinite time. Some few smelting furnaces are vaulted over; and then have an opening like that of an oven, but higher and larger, for the introduction of ore and fuel, with apertures through the vault for the issue of the smoke. The blasts of two bellows urge the fire in both. The tap hole, shaped like a small gothic window and nearly on a level with the ground, being well closed up, is from time to time tapped or perforated with iron bars, first high enough to let the slags only

or dross come out, and afterwards, lower down for the metal, which runs out into moulds formed in the ground, and overflows from the one into the other, the cakes or slabs thus cast being of rough copper. The apertures are immediately again closed up, by flinging against them lumps of moistened cement. The second and last process takes place in a reverberatory furnace, where the rough metal is only once purified or refined: this is effected, whilst the copper is in a state of fusion, by the introduction, through a hole made for this purpose in the side of the furnace, of an iron rabble, with which the dross is stirred, and skimmed off as it rises: when the copper is deemed sufficiently pure, the tapping hole being broken open, it is received in ten or twelve moulds, which cast it into the slabs of about two quintals each exported from Chile. This Chileno copper is often and erroneously called Peruvian, in Europe.

We will now take this opportunity of noticing the great advantages derived from unfettered operations, and from a proper distribution of labour. Although some copper ores in Cornwall be very rich, yet the mean produce in pure metal, of those which are wrought in that part of Great Britain, is stated to be from eight to nine per cent only, whilst the ores of Chile probably yield, one with the other, between sixty and seventy per cent of it; and the price of labour is at this time sixty per cent for shaft's men, and from twenty to thirty for other labourers, dearer in the former than in the latter country. The ores of Cornwall are purchased from the miners, carried to Neath and Swansea in South Wales to be smelted, and there undergo eight different times roasting and fusion in reverberatory furnaces. The ore is first roasted at a heat which, being kept under the degree of fusion, reduces it to a calcined powder: secondly, it is transferred into another furnace and there melted: thirdly, it is again roasted: fourthly, again melted; fifthly, once more roasted; sixthly, melted a third time: seventhly, again fused, and the metal is then refined by rabbling, which means stirring the liquified matter and skimming the dross from it, when the coarse or blistered copper is produced: eighthly, again melted and refined, when all earthy substance, iron, tin, arsenic, sulphur, and

other foreign metallic mixtures, having been expelled by heat or taken off by the rabbler, copper very nearly pure only remains, which is then fit for all manufacturing purposes. But notwithstanding the very considerable advantages thus seen on the side of the Chileno miner, a copper ore which yields less than fifty per cent, is said not to be worth smelting; and in many spots, even such produce would not be found to answer. The copper of Chile, owing to the imperfect method by which it is obtained, must be again refined in the foreign countries where it is used, and the loss experienced by bringing it to the standard of good European copper is estimated at twelve or thirteen per cent, of which from six to nine are a reduction of quantity, and the rest placed to the score of expences. There is however good ground for believing, that with a little more skill and pains on the part of the Chileno miners, their copper would be rendered equal to any in the world. It usually contains a small quantity of gold, and sometimes the mixture of this precious metal with it is considerable.

The Plate No. XV. represents a copper ingenio. Miners are seen bringing the ore out and breaking it. Asses are conveying it to the furnace. A miner is going to it; their dress consists of a woollen red cap and blue tunic, with a leathern apron behind, fastened in front of the waist. Four peons, almost naked, are working two pairs of bellows; after four hours of this labour, which is very hard, they are relieved from it by another set of men, and instantly cover themselves with thick woollen garments: in some ingenios this work is performed by water: two pipes, which communicate with the bottom of the pile, lead there the blast, which is however only alternate, each bellows being single. A man is supplying the burning pile with fresh ore, and another is carrying acacia wood to it. Two men are tapping that furnace; and one is rabbling the copper which is refining in another. The mayordomo is looking over the work. The open furnace will be shown in Plate XVI.

The next day we passed by a large mansion, near which were copper and silver works, and shortly afterwards arrived at the hacienda of one of the principal and most opulent families of Chile: its owner, who is also a very considerable copper miner, was in it, and politely asked us to share the dinner to which he was sitting

Sketched by P. S. On Stone by O. Scharf

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COPPER INGENIO.

LIBRARY OF THE ...

down. We found the yard filled with a great number of large heaps of copper ores from various mines. The mansion had, like many of the haciendas in this country, the appearance of an extensive farmhouse: on one side of it was the store or shop, where all the articles required by the miners and other people employed or living on the estate are supplied: for, as I have already stated, almost every person of rank or wealth, whether engaged in mining or other pursuits, keeps a shop here. The family at dinner was large, and the company increased by a priest, the steward, shopman and others. The whole had a patriarchal appearance. A considerable number of dishes were brought in rotation; soup, boiled and roasted meats, poultry, eggs, and several kinds of vegetables, under various forms and dressings, all very fat or oily. Standing dishes of olives and of small pieces of cheese are usually found on a good table; and it is the custom, whilst a course is removing and making room for another, to exchange either the one or the other with guests, as well as the forks by which they are held: ladies offer theirs to a stranger, as a compliment which he is expected to return in the same way: but, not being aware of this fashion, I naturally at first detached what was offered, from the fork which I returned to its owner, and observed some surprise at it. I never saw the poorer classes in Chile eat much at any one time; but the rich, who seldom take any thing more than matés or chocolate for breakfast, make a most substantial dinner at one o'clock, of such various and fat dishes as require a siesta and the fine climate of this country to bear them well. After the siesta matés are again taken, and at nine or ten o'clock a copious supper closes the employments of the day.

Every one went from the table to his own room, there to lie down a few hours, except the guests, who again and heavily mounted their beasts. We missed the way to an hacienda where my fellow traveller, who was acquainted with the principal families of this country, knew that its owner was entertaining a party of friends from Santiago, which he intended that we should join till the next day. Late at night, being still on the road, owing to the want of habitations, we were gratified with the sight of more animation than we had yet witnessed in broad daylight.

The convenience for smelting copper, of an extensive spot in a valley which communicates with that of Coquimbo, had caused several ingenios to be established at small distances from each other, and their furnaces were in full action. But whoever has seen the extraordinary night view exhibited in the neighbourhoods of Newcastle and Birmingham, would enjoy the former rather as an indication of rest after a long day's ride, than with feelings of surprise. A scenery of the same kind, which before the introduction of the process of amalgamation, in the year 1571, must have exceeded them all in splendour, was that of the mountain of Potosi, on which six thousand burning furnaces are stated to have been seen smelting its silver ores. After that period the number gradually decreased to two thousand, and only the richest and least refractory ores are now reduced by fusion only, in America.

We arrived in a village, one of the stations on this road fixed upon by Don Ambrosio O'Higgins, whose exertions to promote the prosperity of Chile were very great, for the erection of towns and the increase of population in the broad vallies of these northern parts; but this scheme has not hitherto met with much success, as very little encouragement, if any, is yet held out to the poorer classes for improving their situation, and as the late struggles for independence or other causes have thinned the numbers of all: the land and the trade are, as we have seen, in the possession of a few; and as to the mining business, besides the local and constantly increasing difficulties already mentioned, the want of capital, of steady perseverance, of knowledge, and of hands, miners have still to contend with cumbersome regulations. Most of these obstacles might however be, in a more or less degree, overcome or removed. Though the rivers be small, yet, from the foot of the Andes to the sea, they run without abrupt falls or overwhelming currents, and might, by means of flat barges or of rafters, become an easy conveyance for the produce of the pasturages, the fields and the mines: a greater attention to a proper division of labour, and a quicker circulation of capital, might cause the ore to be sent to and smelted in more convenient places: the use of coals brought from Conception for this purpose, would assist and increase the coasting trade; and

if they should not be of a quality quite fit to answer it, it is probable that mixed with wood, they might do so. The duty on the exportation of such a beneficial and staple production as copper, amounts to about twenty four per cent on its present value, and the trade of the stores is burdened not only with inland provincial duties, but also with very tedious formalities. A traveller is often astonished at the want even of the most necessary industry; for, if the winter showers be too late or scanty, mules and asses lose their strength, and many perish under the hard labour which they have to perform: barley and chaff must, in more or less quantity, be almost constantly got for them from distant places at a dear rate; and even flour, beans, and other provisions, are brought from Valparayso for the support of the inhabitants of vallies, which exhibit in a state of waste a great part of the most convenient and fertile soil for agriculture and artificial irrigation, and where two good crops of corn might undoubtedly be raised within the same year. In these, a large piece of lucern ground is the source of a considerable income. Persons engaged in mining, when lucky, are very apt to game and spend their profits away, under the expectation that the vein of ore will not fail, and with the saying cited by Molina, that mountains do not keep accounts. The labouring miners, when paid their monthly wages, follow the same course, stake or lay them out at play and in spirits, and stay away from their work: this is a time for much riot and sanguinary strife among them.

Late on the Sunday evening we reached a large hacienda, whose master was not in it, but the mayordomo received us. Hospitality to travellers is so generally practised in Chile, that they may ride with all their beasts and baggage to the gate of a mansion; the purpose is stated to the steward, and a room with a table and some chairs is in most of them destined for their reception; the beasts are unloaded, and either they are turned into the lucern inclosure, or the grass is cut and brought in for them. If the owner be in it, he will probably ask the strangers to go in and sup with him: a denial for the night very seldom takes place; but in such a case, as sleeping in open air is always preferable, there always are some people about the house, from whom provisions and grass may be had.

We observed a crowd of people at the door of a small room: the appearance was that of an overflowing country chapel on a Sunday evening in England. A chapel it was, but changed after mass into a ball room. I was struck in an extraordinary manner at the sight of an assemblage of Chileno country people of both sexes, well dressed, dancing to the sound of a guitar, before an altar richly ornamented, and covered with many sacred images which they had just been worshipping. The instantaneous effect and association of ideas which took place at such an unexpected and incongruous exhibition, were followed by an anxious wish, that so much tolerance towards themselves might soon be extended by these people and their pastors to all their fellow creatures. The performance was the same as that which has been described with the chinganas of Santiago, the *zapateado* dance; and my friend went through it, in order to check a disposition to break up at the sight of strangers. They struck on the guitar a mutilated Scottish reel, which some British seamen, on their way by land from Coquimbo to Valparayso, had taught them to play, and the more easily to perform as it is somewhat like the zapateado.

Having one day entered a very small and poor habitation, we found in it a girl, about eighteen years old, dressed in fine glittering but ragged lady's clothes, and sitting as if she had been expecting morning visits from a crowd of admirers; her complexion was very delicate and fair: an elderly woman and several daughters were all at work in a very homely dress, with a hair and skin which indicated a strong mixture of Indian or rather African blood. On enquiring who the fine lady could be, my fellow traveller told me, that she, also, was an *accidentally* fair daughter of the same mother, and that her parents were so proud of having a white female child, that she was looked upon as the mistress of the house, did no work, and was waited on by her sisters.

This upper road to Coquimbo does not lead to it along the valley and river of the same name, which only begin their westerly course farther to the northward, but it passes over a very considerable and most arid tract of level ground, which lies between small mountains, and at the end of which, half a league from the sea,

a small descent leads to a strip of land, many miles in length, which forms a kind of terrace a little above the lowest part of the bay. On this terrace stands the town of Coquimbo, originally *Cuquimpu*, which is defended by a wall, now much decayed. Water is brought to it by irrigating channels from its river, which, a few miles to the north, empties itself into the sea. The sudden view of the town and of the cultivated grounds near it, from the edge of the barren land above, is striking, and would be rendered very pleasing by a more extended and careful cultivation: the lucern fields were observed to bear it only in patches, and none appeared in a state fit to challenge a close inspection: but the situation is such as to offer easy means of rendering this bay one of the finest in Chile, for between the town and the sea is an extensive space of waste fenny lands, probably the cause of some insalubrity of climate complained of here, which might be made to produce corn and lucern grass sufficient to supply many districts, whilst the long sloping terrace on which Coquimbo stands, might be wholly irrigated and cultivated. The port lies six miles farther to the southward, and therefore at a still greater distance from the river: no water has yet been led to it by land, which is a great inconvenience to the shipping; but a little brook runs within a league of it. A good shelter is there offered to vessels of considerable burthen, and the road between it and the town skirts the bay on a nearly level ground. The mountains form here a fine but naked scenery.

Much of the copper extracted in Chile is shipped from hence, and this spot seems susceptible of such considerable improvement, as may hereafter render it of great resort and importance. The veins of ore in the neighbourhood of this place are not, it is said, so rich as those which lie near Guasco and Copiapo, but run larger: in our way from Yllapel we could often see them, trending in various directions over the naked hills, whose formation appeared to be principally of argillaceous slate, projecting out of the ground like dikes, of a greenish brown tint. Many good families reside in Coquimbo, which is in some degree a little capital to northern Chile. The number of its inhabitants is stated to amount to seven or eight thousand; and, from its size, the very few people seen moving in it and its market place, such a population may

be deemed rather over than under rated. A small school with about eighty boys taught to read and write, was all that I could find here to denote the care of education, for which the sons of the most considerable families are often sent to Santiago. The river and its valley, where are many haciendas with cultivated grounds and some vineyards, cannot be seen from the town. We were very kindly received in the house of Anglo-American merchants, engaged in the copper, silver, chinchilla skins and general shipping business, the only foreign house of trade in this place. An English medical gentleman was practising in it.

Here I parted with my fellow traveller, the loss of whose company I sincerely regretted; and with a muleteer I set off for Guasco, distant about sixty two road leagues from Coquimbo. The way to it lies near the sea shore, between breakers, high banks of sand and small mountains, sometimes over ridges of rocks stretching from the latter to the sea. Many parts of this tract are interesting, but the heat and dust of it are great. A considerable range of huge rocks, remarkably coppery in their aspect, and probably so in their formation, reach the sea here, and are seen to extend a great way into it; the waves, when arriving on the beach, are edged with a reddish green spray, which I have no where else observed, and is undoubtedly caused by the nature of these masses. The little valley and village of Señoril on this road, gifted with a small stream, formed the most sudden passage and finest contrast yet seen in this country, between extreme aridity and the luxuriant vegetation of small spots covered with lucern and corn; it was not far beyond this place where we found the rock of calcareous shells already described, which looked as if gradually converted, or converting itself, into granite. Considerable deposits of sea shells probably exist along the greater part of the coast of Chile, independently of those which are constantly left on the shore by the waves; and I was often struck by the exhibition of some of them, which, at a distance and on a small scale, was very like that of the large masses seen in the Andes, of a blueish grey colour similar to that of barilla. General Ulloa mentions that along the southern shore, near Conception, are likewise observed very great accumulations of the same kind, the shells of which, large and small, and of

species differing from those now existing in that part of the ocean, are found both in high and low grounds, twenty feet deep or more: he had seen them at a hundred and twenty feet above the sea, and heard that at the height of three hundred they had also been discovered, but how much higher he did not know: some were whole, and some broken by the pressure of superincumbent strata.

Our journey was regulated by the distant habitations on the road, and these were only found where a thin spring yielded a sufficient supply of water for a few people. Two or three large fig trees by their side, and an accidental view of higher mountains towards the Andes, were the objects which contributed to break the uniformity of a nearly desolate scenery. Though winter was far advanced, no rain had yet fallen in this part of Chile. We passed over a mountain and arrived in the broad valley of Guasco, now only watered by a very small river, near which, notwithstanding its favourable situation for agriculture, the greater part of the ground was waste. We stopped at a small village called the Asiento de Guasco or Santa Rosa, the only one in this valley between the shipping place and the town, a distance of about thirty five miles; whose chief inhabitants are engaged in mining, and in the retail trade of their shops. At night they came to the house where I had been received. On a long slip of carpet sat the ladies after the old custom of the country: the most favoured place is on a bench along it: a tertulia was formed; the men were of gentlemanly deportment; even my master muleteer came in to pay his respects, but took a proper station near the door: the other sex kept up a gentlewomanly appearance. Cigars were smoked by the former, and the conversation turned principally on copper, the ships expected to call for it, and on the expedition then preparing against Peru. A stranger is hardly ever asked any questions in this country by any class of people; the desire of information does not yet seem to extend much beyond what concerns mines and stores, and once satisfied that I had not come to buy copper, our arrival in the valley of Guasco ceased to afford any interest. During the tertulia a feature characteristic of ease and indolence was exhibited. A poor boy, sent on an errand, thrust his head in at the door, and asked "is there sugar?" The lady of the house, her husband not being within, answered "there is," but did not move for a considerable

time: at last she left the party and went to the store to help the boy. The striking contrast between this and a shop in some large capitals of Europe could not fail immediately to present itself, with some poor woman very hastily coming into the latter, venting the sourness of dependent poverty, or perhaps discharging the scoldings of a mistress; displeased at what was offered; eagerly seizing the opportunity of assuming some power, and threatening to leave the shop unless instantly served. But I have generally observed in this country the appearance of as much favour conferred by dealing goods out, as by asking and paying for them; and the cause of this becomes obvious by what has been mentioned of the state of trade and property.

This tertulia is shown in Plate No. XVI., with the addition of maté drinking, although now seldom introduced into parties, owing to the scarcity of hierba, and to a change of fashion, which also gradually tends to raise women from their carpets and to place them on chairs or sofas.

The next morning I saw the peons employed on the premises come in for their breakfast, which was set out for each of them, and consisted of dried figs with somewhat more than half a pound of wheat bread. Such peons, whether employed in husbandry or other labour, receive for dinner a wheat or kidney bean soup, and sometimes a like pottage for supper, besides which they are paid one and a half real, or ten pence half a farthing a day. The usual price of labour in the mines is twelve and a half dollars a month, or fifty six shillings and three pence, to the men who strike off and smelt the ore, they furnishing their own tools, and seven dollars to inferior workmen, besides the same meals as those already mentioned. Women are chiefly hired for domestic service only, at the rate of from four to six dollars a month, according to the place of residence and the circumstances of the families in whose houses they live. Having begun to value the dollar at four shillings and sixpence sterling, I shall continue so to do; but, from the late considerable fall of silver in Europe, four shillings only would now be nearer to its relative value.

Most of the persons engaged in mining in Chile are assisted by people of Santiago, Coquimbo, and Valparayso, who trust them with what they want for the supply of their stores and works, and contract at low prices for their copper and silver in return,

Sketched by F. S. _on Stone by G. Scharf.

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TERTULIA *and* MATÉ PARTY.

by which a twofold and usually considerable gain is made by the lender, who is then called *habilitador*, the miner being the *habilitado*. Some early British settlers have been profitably engaged in this branch of business; but it is laborious, as they must travel through the country to watch over their interests. When a vessel arrives from Asia, North America, or Europe, and wants copper, either at the receipt of some previous advice of her destination, or whilst she is unloading and selling her cargo, a contract takes place for it with the habilitadores, who inform the miners of the time when they shall be called upon for it, in return for the advances made to them. What is extracted in the vicinity of this valley is shipped at the anchorage below it, an exposed and inconvenient place for vessels to wait long and load at. The same disadvantages are felt in the port of Copiapo, farther to the northward, where the copper made in or near its valley is usually called for.

I left the Asiento for the little town of Guasco, twenty two miles farther up the vale. This, like the former broad vallies in our road, was originally filled to a considerable height and the width of one or two miles with loose matter, chiefly rolled stones; and through them has the present small river sunk its bed. All these vast channels seem to indicate, that the immense bodies of water which they held, first rushed violently down from the Andes, opening for more than a hundred miles a communication with the sea, and afterwards flowed with a more gentle stream, gradually depositing in their course what they carried away from that chain and the lower mountains. A great part of the low grounds here continued to be without cultivation. I was civilly received by the Governor of this district. The town of Guasco may contain two thousand inhabitants, the principal of which keep stores and are engaged in mining for gold, silver, and copper. It, with the Asiento and the port, forms the chief population of this valley, in all perhaps a little more than three thousand souls. No school has yet been established in it, but it was intended to form one on the plan of mutual instruction.

The next large valley beyond this, forty road leagues farther north, is that of Copiapo, from *Copayapu* its original Indian name, with much about the same number of inhabitants, engaged in the like pursuits. It has a small river. The ores

are there generally very rich in metal, and copper is found near the sea side. Higher up, in the Andes, lie considerable deposits of sulphur, sufficiently pure for use without previous refining. A few white grapes are dried at Copiapo, of an exquisite flavour. The inhabitants of these northern provinces of Chile had not been disturbed by any violent earthquakes, such as had sometimes taken place in the southern, until the year 1818, when that little town was overthrown by one, whose effects would have been more destructive, had not its inhabitants had time to quit their houses. Many slabs of copper, which had been covered with sand by the advance of the sea, were afterwards dug out again.

Beyond Copiapo lies another transverse valley, down which runs the river Salado, within one and a half degree of the tropic of Capricorn, forming the northern boundary of Chile, and so called from the salt impregnated with it and deposited in its course, of a very white colour, and fit for immediate consumption: this brook rather than river is said to flow only part of the year. A few roving Indians inhabit that valley, beyond which begins the desert of Atacama, which may be crossed by skirting the sea side, and carrying water and provisions for a journey of near two hundred and fifty miles to the small settlement of Cobija, which is the port of Atacama, an inconsiderable town in Peru, forty leagues distant from it. This nearly uninhabited country of Atacama forms one of the confederate states of La Plata, and the point of communication between them and the Pacific ocean, particularly with Lipes and Potosi, whereto leads a road from the town of Atacama over the chain of the Andes.

I visited near Guasco two extensive silver ingenios. The process for extracting this metal by amalgamation is effected as follows. The ore, after having been broken into small pieces, and sometimes slightly heated in an oven, is crushed in a mill similar to those which are used in Europe for making oils or cider, and which, if moved by water, has an horizontal undershot wheel, called in the French language *à godets*, that is, with arms in the shape of deep ladles, over which the water is directed in its fall. The shaft which holds this wheel, passes upwards through a bed stone about six feet in diameter, which has a circular channel eighteen or twenty

inches deep: a vertically running stone of three and a half feet diameter, and from twelve to fifteen inches thick, is fixed to the shaft by an axis, and turning within the circular trough, pulverizes the ore: but in some of the most considerable silver works of Peru and Mexico, this trituration is effected by heavy pounders. A stream of water, directed into the trough, carries the earthy and metallic particles of ore, as they become sufficiently pulverized for being washed out, into a cistern or pit, the contents of which overflow into another, so that the heaviest of them sink to the bottom of the first, the lightest to that of the following. These pasty sediments are taken out and laid on ox hides or stone floors, in separate and equal heaps, of which each forms a *cuerpo* or body, and with this are common salt and some mule's dung well mixed: mercury is then gradually sprinkled out of a bag over the whole, which is well stirred and trodden down two or three times a day, by men in Chile, but sometimes by mules in other places, until it is observed that the mercury remains by itself, the silver being saturated with it: six times the quantity which the ore is supposed to contain of silver is usually required, and from one to two hundred pounds of salt for a cuerpo of twenty five quintals of the moist sediment. If the amalgamation be difficult, owing to the ore being what is called by the operators too cold or too warm, a little lime, sulphates of copper or iron, lead ore or other ingredients, are often added to qualify it. This process lasts from ten to fifteen days, or more if the silver be tenaciously mineralized. We observe in Humboldt's, that its duration in Mexico is frequently from two to even five months. But there, and in Peru, in some works, the paste is laid in large troughs or pans, and heated or boiled, by which means the amalgamation is very much accelerated.

The amalgam, when completed, is carried into a trough, and there stirred under a stream of water, which causes all earthy and some of the lightest metallic particles to overflow into another trough, and from this into a third, to the end that the whole of the metals may be secured by their superior weight, and none but earthy matters be ultimately carried away. The metallic amalgam when sufficiently washed, is taken out, put into close bags, and pressed with weights, so as to squeeze as much of the mercury out as will yield to the pressure: this paste is then moulded into a

truncated *piña* or cone, like a sugar loaf, having a perforated copper bottom through which some more mercury is pressed out, after which operation the mould is taken off, and the piña placed in a small furnace, on a tripod and over a vessel full of water: an earthy cap like an inverted crucible is put over the piña, and, by charcoals placed around it or other means, it is sufficiently heated to cause the evaporation or fusion of the substances mixed with the silver; so that the mercury which issues from it in a state of vapour, meeting with the cap, is condensed as it comes in contact with the water below it, and is thus distilled into it, resuming its original form, but having lost, it is said, some of its amalgamating property. The piña, which has now been left of nearly pure silver, looks in many parts hollow like a sponge, and if purchased in this state ought to be carefully examined, as its greater or lesser purity naturally depends on the skill and integrity with which the process has been conducted. It is refined by fusion, and cast into bars, which are then of a more pure and equal standard.

The reduction of gold ores is performed much in the same way; but as this metal is in most cases very easily detached from them in a pure state by the operation of crushing alone, the process is much more simple and expeditious. As soon as the ore has been pulverized in a mill, mercury is added to it, which immediately combines with the gold: a stream of water, directed into the circular trough, carries off the mass into cisterns placed beneath it, to the bottom of which the gold and mercury sink in globules. The amalgam is then washed, and, like silver, treated by distillation. I saw, near Tiltil, one of the large crushing stones which were formerly used in this country: a long horizontal shaft was fixed to the upper part of that stone whose shape was such, that by alternately moving the shaft up and down at both ends, the ore, which lay in a hollow bed stone under the other, was gradually crushed on each side.

Before the conquest of America, its western inhabitants used to obtain silver by smelting the least refractory ores of it in very small furnaces called *guayaras*, of which some remains are still extant, and which consisted of a cylindrical earthern tube, having several holes in its sides for the admission of air. These *hornillos* were

erected upon, or carried to, spots exposed to the most prevailing winds; the ore and fuel were piled up within them, and the fire was quickened through the perforated sides. The Spaniards afterwards found that many ores which could not be reduced by means of bellows, yielded to this practice of the Indians, who, after the operation of smelting, refined the metal in their cottages; ten or twelve of them blowing through copper tubes, and thus sending to the furnace the blast required for fusion. At the time when amalgamation was introduced, vast quantities of old silver ores, which, intractable by the former process, had been rejected as useless, were then easily reduced, with very considerable gains.

We have already indicated the principal silver mines of America. The most celebrated in Europe for the production of this metal, are those of Sweden and Norway, of Freyberg, in Saxony, and of Schemnitz and Kremnitz, in Hungary. Others, of less abundance, exist in almost every mountainous country. The extraction of the metal is effected by amalgamation or smelting, according to the nature of the ores; and whilst the former mode is extensively practised for some of those of Saxony, it has been discontinued in Hungary, having been found less fit there than fusion only. The ores of Freyberg, destined for the furnace alone, are divided from those most suitable for amalgamation. The latter, with an addition of one tenth part of common salt, having been dried, calcined, and sifted, are ground in a mill to an almost impalpable powder, which is put into twenty chests, placed over as many barrels, in four rows. Each of these barrels, in which the amalgamation is to take place, is charged with ten quintals of pulverized ore from its corresponding chest, three quintals of water, and a small quantity of sheet iron. These are well mixed by a gentle rotatory motion of all the barrels, which, turning on their own axis, are worked by machinery. Five quintals of mercury are then added to each, and the action is accelerated to about twenty revolutions in a minute during sixteen hours, after which time the amalgamation is usually found completed. The barrels are then filled with water, and gently moved for an hour. The amalgam, having subsided, is drawn off, put into leathern bags which being pressed suffer the uncombined mercury to pass through, carried to a common furnace, and there distributed

into five iron saucers, which are placed on a tripod over a vessel full of water: the whole is covered with a cast iron bell, around which an annular iron shelf, fixed at about half its height, receives the turf, whose fire, heating the upper part of the bell under which the saucers lie, causes distillation. It is stated that by this improved method, which requires less than twenty four hours to complete the operation, only one eighth part of the proportion of mercury generally used in the American silver works, is necessary. But, supposing the mean produce of every quintal of silver ore in Chile to be from six to seven ounces of pure silver, and in Saxony from three to four, the outstanding stock of mercury required by this, Baron Born's, method, is so considerable, that though afterwards chiefly got back in an uncombined state, this charge, with the difficulty and expence of machinery in Chile, may long be an obstacle to its general introduction there.

Gold is found in most parts of Europe, and obtained by washing, amalgamation, or smelting, and sometimes parted from other metals by means of nitric acid, which dissolves them and leaves the pure gold. There are different methods of washing for it, but it does not appear that it is, as in America, looked for in the former beds of rivers. The gold washers in Hungary use a board five feet long and three wide, crossed by a number of deep notches, and lying on an inclined plane: the auriferous sand is put on the upper part of it with a shovel, and water poured over it, by which the coarsest is washed away, and the finest left with the gold in the notches: this is removed into a black wooden tray, and placed under a stream of water: what remains at the bottom is amalgamated, and the gold is parted by distilling the mercury from it.

The Plate No. XVII. represents a silver ingenio in Chile. A man is carrying ore to the mill, from which, as it becomes well pulverized, a stream of water takes it into the pits. The sediment got out of these is partly undergoing on hides the work of amalgamation, and partly arranged in *tortas* ready for washing, an operation which is seen effected by women and boys. The piñas of amalgam are refining in the furnace. Farther on is shewn a copper ingenio, where an open smelting furnace is at work.

Sketched by P.S. - On Stone by G. Scharf

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SILVER and COPPER WORKS.

CHAPTER XIII.

RETURN FROM GUASCO TO VALPARAYSO.—AN EXCURSION FROM THENCE TO QUILLOTA, ACONCAGUA, AND THE BATHS OF COLINA.

I LEFT Guasco at the end of July. Much uneasiness then prevailed, as not a drop of the usual showers of winter had yet fallen, and as the Andes exhibited a very thin covering of snow for the supply of its small river. When I again reached the Asiento, the person who had obligingly received me there proposed, that, instead of taking the straight road to Coquimbo, I should go with him to the gold mounts, where the principal gold and copper mines of this district are wrought, and where he was going to inspect his works. We set off, and I found this a very interesting excursion. We passed by several gold mines, some abandoned and some working; sometimes in elevated spots, sometimes at the bottom of the glens. Large heaps of copper ores were in many places ready for the furnace. The veins of it often ran down a hill, across the valley, and up the next hill, in a straight line, and shafts had been sunk or were sinking here and there to meet them, in hopes of finding in the ore a greater abundance of metal. The mounts were of smooth and handsome forms, with fine narrow glens, but with very little vegetation: many spots were covered with a mossy crust of a crimson tint, and the acacia looked as if its heavy contributions to the miners had left it in a very exhausted state. We met with a number of asses loaded with wood, water, provisions and ore; the carriage of the copper being more particularly reserved for mules: a slab of it is placed on each side, and the two weigh a little more than four quintals. In one spot we found some people employed in again smelting heaps of scoriæ, which had lain for years or ages, and yielded sufficiently for a small profit, owing to the advanced price of copper. An idea prevails among many miners, that much of the old earthy dross is

gradually and naturally converted into metal. We slept and parted at the last copper ingenio on this road, where I saw some fragments of large masses of iron pyrites which lie in these hills, and which the miners call bronze.

Whilst we were crossing some of the last small vallies, which only extended about twenty miles from the hills to the sea, the impression caused by them was of no less lively than singular a nature, when I considered, that, as there was no water in them even at this season, most of the very numerous rolled and river worn stones seen on the ground, were probably still lying precisely in the same position as that in which, some thousand years ago, a great catastrophe had left them, though looking as if they had but just been brought down; and that several of them were perhaps, for the first time since then, disturbed by our beasts. I now felt very anxious to see what the spring tide of Chileno vegetation would produce, and whether or not I was to be disappointed in this season as I had been in the others. The sky behind us, darkened with heavy clouds from the northwest, indicated that rain was at last moistening the parched lands of Guasco. A very light shower had just fallen in the tract which we had reached; and in issuing from the last hills towards the sea, some of which were glistening with yellow mica, and some formed of the decomposing granite whose fallen fragments exhibited the remarkable shapes described in the eighth chapter, the plant most in motion in some spots, and which was seen almost rising from the ground, was somewhat of the size and appearance of a tulip, very pretty, and the more pleasing, as the different stages of its growth, bloom and decay made a nearly moving scene before us. It was surprising that the seeds or bulbs of these plants, which had been a whole year lying in such hot and dry soil without any shelter from a burning sun, should have retained any spark of vegetive life. Lower down, nearer to the sea shore, some blades of grass were springing up, but so thinly as not to alter the tint of the ground: the shrubs were still motionless.

Once more at Coquimbo, in whose port a South Sea whaler only was observed, and where the same inactivity prevailed as during my former visit, I regretted that

I could not go and see a convent about thirty miles from hence, which was described in terms of admiration. But in this country, monks were not able to build in the same style and with such scenery around them, as those of Tintern, of Netley, of Melrose, or of Einsiedlen: their monasteries, both in towns and out of them, are plain low buildings of adobes, and the latter are more haciendas than convents, where the works of breeding and slaughtering cattle, of making wine, and of other lucrative pursuits, are followed with as much activity as in any lay residence; and it is not without much peril, that they have made their churches more conspicuous by the superaddition of small steeples. Some of these religious establishments exist in this town, and the Jesuits had a college in it.

I left Coquimbo with a muleteer, and was wondering at the attention of this man, who, whilst I had only contracted for an humble mule, had brought a handsome horse, comparatively accoutred with some splendour; when, having just left the town, I found a beast of the first description waiting for a change: the parade was over and travelling now to begin: the upper showy trappings went back again, and the old tackle under them was shifted from the former to the latter animal. How humiliating, I at first thought, either that we should find our feelings gratified by so childish a scene, or that others should think them so!—but after farther consideration, the master muleteer appeared to me as having acquired as much practical and philosophical knowledge, as the range of his pursuit could have procured him, had he been plying with his mules and horses in the most enlightened parts of the world. If a traveller, whilst writing his narrative with a hope of praise as well as of profit, be reminded of the maxim that "vanity of vanities, all is vanity," he may in his turn observe that—show of shows, all is show. A great and good man is not represented on a sick bed, taking a medicine, wrapped up in bandages, or covered with plaisters and poultices, indicating painful operations and long sufferings; though such an exhibition might be the most characteristic of his unshaken fortitude and patient resignation, under the most severe visitations and trials. A fearless and renowned warrior must not be drawn in his night cap, gown and slippers, his face

covered with soapsuds, and in the act of being shaved, nor with a napkin instead of golden ornaments on his shoulders and breast, ready for the drawing of one of his teeth out; though just as brave and as great a chief when under a barber or a dentist, as when over some hundred thousand men, directed by him to kill and maim as many of their opponents as they can: but he must be exhibited with a military dress so splendid, arms and trappings so dazzling, a look so terrifying, a gesture so full of action, and on a horse so fiery, that the affrighted beholder shall start back, lest the picture, suddenly animated with the fire of Prometheus, should strike his own head off his shoulders, or trample his body down to death. An eccentric man is not shown just cast upon a deserted island, there to live by the chace; for a spot like this would not fit the peculiarities so strongly wrought in his features; the gaze of observers, if not seen, must be implied, else the intended expression loses its effect, by the anticipation of a sudden disappearance of all eccentricities. In short, for the growing pageantry of stage effect, horses, not mules or asses, are inlisted among the performers, and assigned a part to the scene. A common traveller has therefore a right to enjoy such impression as may be made by the parade with which he is indulged by an experienced muleteer, who, no less than the eminent artist or skilful stage-manager, well ought to know how best to show him off.

Our journey continued to be near the sea shore; and having crossed the large valley and small river of Limari, we came back to that of Chuapa, and to the spot where we had left this lower road for the purpose of joining the upper. In coursing along the small mountains which line this coast, a feature was exhibited, which I afterwards often noticed in many parts of the Andes, and which seemed to indicate the cause from which several glens and breaks in their declivities mostly originated. Former high summits have by their fall produced elevated backs, commonly of smooth shapes, and left hollow spaces between them: these glens, *quebradas*, were not so much made by waters flowing down and washing the ground out, as by the rise of their sides. Now, these backs or promontories, sometimes of bolder forms, exhibit bare rocks, whose appearance is that of having originally been fallen fragments which

have undergone a new arrangement and stratification. Such at least was the impression left by them, and it became much strengthened by the many instances offered, both in the Andes and in the lower mountains, of brows so raised and apparently so arranged, where the pieces of fallen rocks were not of such large dimensions as to occasion much confusion and vacancy among them. Whether some chemical laws, that of gravitation, or any other, may or may not have the effect of gradually bringing those small pieces of rocks again into the order which they have lost, must be left to the consideration of others: impressions received in a country yet but little known, and after the view of so many naked mountains under so peculiar a climate as this, may justify the mention of it.

Having no travelling friend with me, I was left to my own meditation; but, jolted and shaken by the hard trot of a mule, through clouds of dust and under a hot sun, the mind was apt to sink, and its impaired powers to be gradually directed to attend on the state of the body alone, by contriving and anticipating what might contribute to its relief. I felt the absence of my former companion. There are periods in a day's journey, such for instance as after a very light repast, or when a refreshing breeze springs up, or at the sight of a beautiful scenery, during which our soul becomes very animated: conversation begins, brings on an interesting subject, this, new opinions, which, by the efforts made to find arguments for their support, give a good exercise to our intellectual faculties: these are at last rendered so spirited, that they will only attend to productions of their own growth, to which all else must yield. Then comes on weariness; first to the one, who, whilst the other is still warmly pursuing the train of his argument, and wondering at so much opposition to it, is unexpectedly observed nodding on his mule, and overcome by drowsiness alone, till both can only think of rest and dinner. But, these over, a heavy ride follows, for both mind and body have incautiously been overloaded: and if, at this time, the traveller can think at all, he will perhaps be reminded of the very elaborate investigations of some ingenious men, whose object is to find and point out the intimate connection existing between the body and the soul, and of the pains taken

by others, to prevent the knowledge of their results from spreading abroad, lest they should lead to materialism. To him, however, who had not been forbidden from eating up to the highest limit of his hunger, this indulgence renders such a connection still more effectually evident, than any of the deepest and most scientific researches on the subject; and he now runs the risk of becoming a materialist, by the simple agency of a roasted kid and a dish of beans, well seasoned with red pepper, and drenched in thick Chileno wine. But shortly, a cooling draught from the Andes, a sun beautifully setting with the warmest tints, make the soul revive, and again glow with intellectual fire within him, until darkness closes both the scene and the argument. All attention is now directed to the discovery of a cottage light, and to the sound of a barking dog, for the enjoyment of rest, and for a new supply of animal spirits: a star had been mistaken for the one, and the other had no existence but in the traveller's wishful imagination. Suddenly many lights are espied in a valley; several dogs are heard barking; and, at last, fires blazing on numerous hearths, and families squatting around them, worshipping their penates in the shapes of pots and pans in which supper is cooking, contrasted with deep obscurity without, afford a most pleasing sight, from which alone the body regains its strength, because no longer required. This, in Chile, forms a characteristic night scene, owing to the large fires whose illumination spreads out through every part of the reedy cottages, and to the great number of dogs kept in them. The Plate, No. XVIII. is the night view of a Chileno village in some wide valley, not far from the sea. The dogs, hearing the trampling of beasts, are coming out to meet them.

The extreme driness of most trees and shrubs in this portion of South America, and ever since we had left the vicinity of Buenos-ayres, has often been noticed: if a bough were at any time broken from them, it snapped like dead wood, and burnt nearly as well. Very desirous of reaching a spot in which their sap should again be in full circulation, I at last came to one where there had been sufficient rain to throw all kind of vegetation into motion; but surprise exceeded gratification, when, instead of fine buds, some swelling, some bursting open, and others putting out

Sketched by L. S. on Stone by C. Scharf.

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TRAVELLERS *arriving at night in a* HAMLET.

leaves of various greens, I observed the middle size stems alone among them sending forth small blossoms, shooting them horizontally and straightly out of their bodies. The flowers might be pretty, but they stuck to thick blackish branches, studding some of them all over, whilst most of the smaller were not undergoing yet any change; and in spite of the very crowded bloom thus put out, the trees still preserved a withered appearance: they have so little sap here, and the moisture by which it is renovated and invigorated is so inconsiderable, that a powerful and nearly unceasing sunshine soon renders them again incapable of growth. The quillai, algarob, acacia, and several other plants, are perhaps keeping themselves alive much in the same manner as does the Lama or Peruvian sheep, by some faculty within themselves of producing moisture. A tree is therefore very little and very slowly enlarged in Chile, but what it wants in size, is made up by its close texture; its leaves are few, but it most abundantly yields blossoms and seeds. We only noticed two or three palms, which rose out of private grounds. On the summits of some small mountains a few scattered trees of middle size were observed, which looked very like quillais. The near aspect of the algarobs is often diversified, both to the east and west of the Andes, by a parasite flower, of a bright red colour, and of a thin elongated form, which sticks to them in clusters, and is, I suppose, the air flower of Molina. The finest blossoms seen during this journey were those of aloes, which, to my surprise, often thickly adorned the sides of our road, and those of a small plant creeping in a few vallies, shaped like a deep bell, and very beautiful. The grass continued to be so thin as to make but little impression on the ground, so that upon the whole, the prospect, whether far or near, had not gained much by the rains and the approach of spring.

In crossing a broad valley, either that of Ligua or one next to it, I observed that towards the sea, it was nearly blocked up by a considerable mass of sand, about half a square mile in extent, carried into it from the shore by the wind, to an elevation apparently of above a hundred and fifty feet. The small river which flows in this valley, washing the sand out again as it is blown into the water, keeps its passage open: this large heap had nearly attained the height of the sides of the

valley, and some time hence, when too high for the power of the wind to add to it, may be mistaken for old land, through which waters from the mountains forced an issue: its surface offered an aspect similar to that of a cluster of hills, when viewed from a high summit above them. Having previously remarked the effect of the wind along many parts of the sea shore; the high ridges of coarse sand made by it; their incipient aggregation and stratification, and the quantity of fine dust carried farther inland; the sight of such a mass, raised in the same manner, naturally gave rise to a conjecture, that after the great convulsion of the earth, and when the sudden retreat of the waters had left vast tracts of deep loose ground exposed to be taken up and moved about by tempests, of whose power and violence we now may not be able to have a just conception, many mountains might have been formed by the effect of the wind alone, with the same division as is observed here, first of the heaviest particles, and next of the lightest, until vegetation held the soil, and our disordered planet recovered a more composed state. Another inference which might be drawn from these ridges of sand is, that the sea may often have receded and still be receding, only negatively from its shores, not so much owing to a self-retrograde motion of the water, as to a gradual increase and rise of its boundary, till the depth of it having augmented, little or no more sand can be brought up by the waves. The pampas, on the other hand, and to a common observer, may convey a strong impression of vast lagunas or shallow lakes, such as are still extensively seen on the southern coast of Brazil, suddenly left dry by their waters, and undulated by the wind before the loose ground became covered with vegetation. A range of breakers so far inland as the southern extremity of the mountains of Cordova, if ultimately ascertained to have stood there, might tend very much to warrant such a supposition. It does not appear, that where laws have provided for the rights of an increase of lands by alluvion, cases of such an acquisition by a windfall have ever been considered.

One night, after supper, a plaintive song, such as is peculiar to this country, was heard from a neighbouring cottage with an accompaniment of the guitar, and I

sent to let the performer know, that I should feel much obliged for more. There certainly was no cause to suspect that it might be Apollo pursuing in Chile the occupation of a vaciano, or to fear that Orpheus was endeavouring to move the cordillera, whose rocks, tumbling down and bounding over the basins of this land, would come and crowd to our spot; but whatever bears a strong characteristic feature cannot be seen or heard without exciting much interest or pleasure, particularly in a very remote country. To the effect of originality may be added a disposition at this time, for enjoying musical sounds and the mere concords of a few notes, whose plain harmony will often enter the mind with a sensation felt as if it did not belong to this world, and may be compared to that produced by the reciprocal exercise of our best passions, whilst that of the worst is like the yells of ferocious beasts. These concords are struck on the guitar, and follow the song, breaking in upon it at short intervals and in the same manner, but alternately, like the song itself, from a major to a minor key, or inversely, so that this talent is very easily attained, and in many poor habitations is that instrument found. The distant waves were beating time on their breakers, and they were the waves of the Pacific Ocean. I was not penned up in an enclosed bed, breathing the impure atmosphere of some large capital; the starry skies were the furniture, and the constellations, among which the beautiful cross, the pattern; the earth made the mattress, on which to lie was a good preparatory habit, for in it was to be the long rest, which might begin on this side the equator as well as the northern, on that very night as well as the one following it. I felt with gratitude, that, being hungry and tired, I had a good supper before me, and refreshing sleep at hand, whilst many human beings there were at the same moment, more hungry still but without food, wanting the rest of days as well as nights but unable to get any; or that some poor fellows, at sea in a frail bark, were perhaps now perishing from want, doomed to feed some greedy fish, or dashing and sinking against some such breakers as then added a pleasing burden to the song. Many a soldier might at that very hour be stretched on a field of battle, breathing hard, not with sleep alongside, but with death watching

for its prey. How many interesting tales of distress are thus buried untold, whilst a traveller presumes to record some insignificant adventures, the relation of which may only find indulgence, when tending to assist in the description of a country and its inhabitants.

We had not yet met in Chile with any herds of cattle or of sheep, nor had we seen any spot, during this extensive journey in it, where they could be maintained in numbers. The sheep in all are not many here, and their breed is very much neglected: among small flocks afterwards observed near Santiago, the real sheep could with difficulty be distinguished from those which were allied to goats, so much were their races intermixed. Cotton, imported from Peru, has superseded the use of wool for many articles of dress; and women are often seen spinning and weaving this cotton, which appears to be of a long, very fine and silky staple. The cattle of the large estates over which we travelled was at this season in the lower Andes, and some few beasts in the potreros or lucern grounds: but whether much of it or not exist, comparatively with the immense extent of pasturages here, may be questioned. The considerable difficulty and expence of conveyance from most estates, tend very much to depreciate the value of such of their productions as are not consumed on or near the spot: ox and cow hides could be got in them for five reals each when I left this country, whilst at Santiago they were worth fourteen: twelve of them make a mule's load, and the cost of carriage when the value is so little, may be conceived. This disadvantage naturally leads to the introduction of tanneries, which are increasing at Santiago, and begin to extend to other places. Hogs are so seldom kept by small farmers or cottagers, that I do not think we had yet seen a score of them; but some small droves, whose breed is tall and coarse, are reared on a few estates. I heard here, that the best method of preserving pork was by sprinkling a little salt over it, and letting it remain some time between layers of snow. Poultry is almost every where found in abundance, and it is often made to roost on such trees as may stand near a cottage: this I one night very disagreeably discovered, by having placed myself under that shelter.

The hours which I daily passed with the poorer classes of Chile, afforded me many opportunities of observing their good and cheerful disposition, their becoming language and manners, the gentleness and the seeming affectionate feelings with which they live with each other: their children appear to do what they please, but such is their natural idleness, that they are probably seldom inclined to mischief. This habit of indolence, which pervades all ages, is however strongly belied by liveliness of countenance and speech, and often by considerable exertions when necessary. The muleteers and their men display great activity. The body here, though not stout, and in northern Chile under a middle stature, is tough and elastic, with well shaped and rounded limbs, capable of enduring much fatigue and privation. A feature which deserves particular notice, is the security with which a traveller may pursue his journey, sleep in open air, and remain entirely exposed during his rest, although known to be always travelling for trading purposes, and generally with much money or valuable goods in his trunks. There are few spots in Chile where this may not be done without risk. To receive strangers is, even with the poorest Chilenos, an act of hospitality rather than of self interest; and they sometimes would sooner be without that opportunity of parting with a very scanty stock of bread and provisions got from a considerable distance: if more than two or three reals be offered for a supper sufficient for two persons, and some accommodations, they will often observe that they do not desire so much, or any thing. The most trifling occurrence will make them laugh heartily; but yet levity does not appear among their mental features, which, taken generally, are viewed and dwelt upon with much pleasure, though the prospect be often greatly spoiled by physical uncleanliness.

One evening, having entered a cottage for the night, sat down by the fireside with its inhabitants, and made some matés circulate among them, the good humour displayed by the family was gradually dispelling some clouds which meditation had raised. But I had often observed on the road that I was not looked upon and treated so well as my own muleteers, for they were not only signiored on all occasions, but sometimes called by the high title of *señor cavallero*, whilst they very seldom,

if ever, would vouchsafe to signior me; their answers usually were a plain yes or no; their asking again what I meant to say, hey or what? and this particularly happened here. I called the *lady* of the cottage signiora, her husband signior, but failed in obtaining any corresponding marks of respect. I once imitated in a manner somewhat jeering their way of addressing me, and asked why they did not call me signior as I did them: they stared, laughed, actually humoured me afterwards several times, as they would have done a child asking for a little sugar, but shortly relapsed into what, I clearly saw, implied some felt or assumed superiority over me. The muleteers themselves, nay their peons even, had very seldom called me signior in South America, whilst they were profusely shedding that honour on their own countrymen and on each other. I felt vexed and mortified whilst I stood looking at the fowl, which, nearly as lean as the stick that held it over the fire, was roasting for my supper; at the plump mother, who, in a blue woollen garment, her plaited black hair hanging down behind in two long tresses, was stirring a wheat pottage for their own; at a daughter, who, in a like dress, but with her hair negligently scattered over her neck and shoulders, was grinding some maize for baking a cake in hot ashes, an operation wholly effected by manual labour and between two stones, one of which, large hollow and resting on the ground, was the bed stone, the other, small, held with both hands and moved backwards and forwards on the corn, the runner; at the cheerful and placid father, who, with his poncho on, a long knife held to his waist by a red sash tied round it, his legs bare, and raw hide shoes to his feet, was smoking his cigar; at some dirty children in ragged shirts, squatting or stretched by the fire with their dogs; all ready for a burst of mirth, if, instead of sulking on my log, I had known how to call it forth; and finally, at my hierba and sugar, which were drinking by the parents only, and might have been expected to purchase a few signiors. My fine clothes, my whole stock of knowledge, all that I mustered to my assistance, only served to increase the mortification, and I remained convinced that there would have been only two modes of success, neither of which was within reach; the one a company of soldiers with their swords drawn over the

head of those who did not otherwise choose to bestow on me what I required of them; the other, such an intercourse, and display of good actions, as would freely have procured those marks of respect. Among the higher classes, with a few exceptions of high feelings and breeding, the same shadows as are thrown over foreigners in several other countries, were frequently observed in this, by some expressions towards them, which, though not infringing the limits of offence, yet evidently show a propensity to rise above them. Thus, then, is the struggle for preeminence every where seen. Each of us values himself as high as he can in his own way, and easy means are placed at our disposal for comparatively increasing our own estimate. We climb up the ladder, fall down, or are by others pulled back; but climb again: and why should not these good humoured and natured people take here their turn at it? This tends to make us so far satisfied with our being, that, whether with much or with little, high or low, though not seldom desirous of stepping into the place of another, yet we would not consent to exchange our own self with any one's; for, owing to a most striking and benevolent dispensation, such a mutation appears impossible without losing the identity of our own existence. When knowledge wounds the pride of the ignorant, he often tries to heal the sore by valuing himself the more for being so. Many tribes of American Indians which we hold in low estimation, are known to look down on us as drudges, constantly intent on gain, and much inferior to themselves. In the course of that general struggle, we are excited by leading passions of an entirely opposite nature in worth and unworthiness, but so inherent in us, that we cannot wholly separate them: we please ourselves with the most deserving and gracious of these motives, and endeavour that they should predominate; whilst, seldom so indulgent towards others, we are apt to suppose or to represent them as chiefly guided by such as are least so. The consciousness of all these effects, when well established by observation, tends to convince us, that advantages nearly balanced may be found on whatever ground we may hold during our short race, and that they are less to be derived from others than from our ownselves: it enables us to distinguish the

sources of permanent gratifications, from those which, operating like spirituous potions, at first intoxicate, the lower to sink us afterwards. With these reflections I comforted myself, and ultimately found that the only bad part of the scene was the fowl, of which the little food afforded was exceedingly tough.

The time spent in travelling from Valparayso to Guasco and back again, was twenty three days: the whole distance is about twelve hundred and thirty road miles. The sun rendered the day very hot; but at night and early in the morning the air was often unpleasantly cold, though not frosty. A circumstance worthy of remark is, that during our journies along the coast we did not see any boat or small craft at sea. The fishermen are few, and they chiefly catch fish from the shore in small creeks: we only met three or four times with this food. Nor does the bay of Valparayso exhibit any country craft: some small and most inconvenient canoes used for the intercourse with the ships, still paddled after the Indian manner, customhouse boats, and a few lighters for landing and loading merchandizes, are nearly all that can be seen in it of this kind, notwithstanding the advantages of such a mode of conveyance in a land shaped as this is. The beautiful shores of Brazil, on the contrary, often present an animated scene of moving sails, leading their productions along the coast to their market.

On my arrival again at Valparayso, in the middle of August, the little army of about four thousand men under General San Martin, destined for an expedition against the royalists in Peru, was coming down, and the embarkation of it was afterwards performed with much regularity on board the small navy of Chile, commanded by Lord Cochrane, its admiral. The soldiers appeared better equipped than could have been expected, when the difficulty and expense of procuring the materials for it were considered. I observed that the men were of a middle stature, of a more even size but narrower in the chest than in the north of Europe, whose picked soldiers are considerably superior in height and bones: even the small body of life guards to the supreme Director, which afforded a specimen of some of the stoutest and tallest men that can be found in this country, was not strikingly different

in size from the rest. I heard from several foreign officers, that the Chilenos make good soldiers and seamen, that they are very docile, and fight bravely when well put to it by their leaders.

During my stay in this port arrived in it an American vessel with fir masts and spars, from some part of the northwest coast near the river Columbia: there appeared many among them, whose fine scaly and whitish bark seemed to pronounce of silver pines; they rise there to a very considerable height, and the commander of this ship told me, that one of those which they cut down measured thirty eight feet in circumference, and was, he had reason to suppose, full two hundred and twenty in length. From his description it appears that they grow on the brows of mountains, where there is hardly any soil, and much in the same manner as in many parts of the Alps: Captains Clarke and Lewis, the North American travellers, found some near that river which were a hundred and eighty feet high: but the pine of the southern hemisphere has been seen in New Norfolk, rising, according to some statements, still higher than either. The crew of this ship brought from the same spot a quantity of iron pyrites, in cubes of various small sizes, which they had found on that coast, inlaid in rocks, forming rows like seams, and in great abundance near the sea side. Part of that crew consisted of men from the Sandwich Islands, who were very well shaped, of a stout and strong growth, and remarkable for the considerable curve of their upper lip, by which a great portion of the jaw was uncovered: it is said that they make good seamen, and readily enter into sea service: they formed a striking contrast with some Lascars from an Indiaman, who were on the beach at the same time, and looked like lean dwarfs by the side of the Sandwichmen.

The hills of Valparayso, which immediately after the rains had been decorated with a little verdure, had passed gradually back into their usual brown tint, and spring had already advanced more than half way towards summer, when I availed myself of some leisure for an excursion to and up the valley of Quillota. Many small farmers daily come from thence on horseback to Valparayso, where the chief part of their productions is disposed of. A characteristic custom of what portion of South America I

have visited, very unlike that of most European countries, is, that women are very seldom seen on roads with the charge of any farming produce, or attending market stalls or shops, or doing any field work: their labour is much more domestic here. Although general industry, and particularly the education and employment of children, be much missed, yet a traveller is not offended by the exhibition of women doing hard work and carrying heavy loads, whilst men are smoking, walking or riding at their ease, as is the case in some other countries, where the former are made to do not only the labour assigned to their sex by nature, but much of that besides, which was more fitly and properly reserved for man.

The town of Quillota appears to contain about two thousand inhabitants, and there are probably as many distributed in its vicinity. The agriculture of its fields did not answer the expectations held out; they were much fouled with wild turnips and other weeds, and the plants of corn, beans, potatoes and other produce, looked lean and weak; but by dint of abundant artificial moisture and continual sunshine, notwithstanding their unpromising appearance, the fruit comes out kindly. The beans are set in rows and bunches, several seeds being dropped into the same hole. The cultivation of potatoes offers much the same appearance as with us, and the channels for irrigation between the lines make an earthing to the plants: this latter production is found in the markets of Santiago and some other towns; but it is not very abundantly consumed: during the whole of our journey to Guasco and other excursions we very seldom met with it; whether owing to the soil, the culture, or the want of care in renewing the species and propagating the best, they are in this country considerably inferior to good potatoes in Europe, watery, and of a dull whitish colour.

A fair was holding in the public square of this town, where, as in other countries on this occasion, eating and drinking made a conspicuous feature. The principal amusements consisted in playing at a kind of *rouge et noir* game, for various articles against a stake deposited in money, or for a pool: crowds of men surrounded every gaming stand, whilst the women remained in booths constructed with branches,

seated along the sides of them, listening to a female singer with a harp or guitar: many men would also often go in, or remain whole hours on horseback close by them, to hear the songs, an indication that this is a very favourite amusement. So was the day passed, and at night fire works were exhibited, of such a complicated nature as to have made a very good show if they had better succeeded. These over, the Chilenoes went home, usually in a very animated, a few in a drunken, state; running races, suddenly exciting and spurring their horses into a kind of frenzy, and stopping them as short as they could pull, a sport of which they are very fond; playing tricks among themselves, and trying to unhorse one another. But when under the effect of more or less intoxication, they still strongly manifest the natural cheerfulness and equanimity of their temper: though ready to be mischievous if irritated, no disposition can be seen less quarrelsome than theirs.

Having left Quillota, and proceeded farther up the valley, its fine mountain scenery very much reminded me of that of Argyleshire, when viewed from the Clyde below Greenock. The low grounds were enlarging and improving; there was more verdure in them than I had any where else seen, though much of them was still suffered to lie waste, and to be rendered unseemly by the river. Alone, and luckily on a tall and strong horse, the mistake of the word *punta* for *puente* was the cause of my fording, instead of passing over a bridge, the river Quillota, now Aconcagua, which, by a good wetting, discharged its disappointment at not having succeeded in carrying us down its swelled and strong current: the bridge, of Indian construction, with reeds and hide ropes, affording a very picturesque view, stood within a few hundred feet of me, behind a projecting rock which formed a point or *punta*.

A letter to a gentleman of Aconcagua procured me some civilities. In the evening I was introduced to parties, where time was chiefly passed in dancing; and during the day we visited families in their country estates. The principal inhabitants here are practical gentlemen farmers, of a robust constitution, and with very warm feelings for independence. This spot, unlike the chief part of Chile, is parcelled out into small properties, to which the owners appeared to give more attention

than was elsewhere observed. The country houses are numerous and spacious, and besides the shopkeeping business carried on there or in the town, by the proprietors of land, some are millers, others miners. I found the agriculture of this basin superior to what I had hitherto seen in Chile, but still wanting too much to render the near inspection of it very gratifying: vegetation was as profuse and unrestrained in cultivated grounds, as the undressed hair of a South American woman. A medical gentleman came to the house where I lodged, for the purpose of holding, during a few days, the assize on the constitution of the Aconcaguines, and was to proceed from hence on his circuit. He complained much of the small estimation in which his pursuit was held, and still more of its results: the crowd of women who came to have their wrongs redressed was considerable; those who paid were few, and what they paid was little. All foreigners are supposed by the country people of Chile to possess medical knowledge. On my arrival once in a hamlet, I was sent for by a woman, and requested that I would cure a bad finger which had occasioned much irritation and swelling in the arm. Being desirous to combine what was due to the reputation of my new brotherhood with prudence towards the poor woman, I peremptorily ordered a bread and warm water poultice: but I staggered when she, not knowing what it was, desired me to make it.

This town, which has lately been raised to the rank of *Ciudad*, only consists yet of a public square and a few short streets; but if we include the numerous habitations and the Villa-nueva near it, the whole population of the basin of Aconcagua may amount to about four or five thousand souls. An Englishman was occupied here in a new experiment, that of salting pork for Valparayso. Hogs are reared in some neighbouring estates, and are said to equal those of Concepcion and Chiloe. This gentleman favoured me with some pork, the choice of which was to enable me to form an opinion of the best that could be got here; and there was no cause, in regard to this article of food, for changing that which I generally entertained, that though there be not in Chile the bad meat which is often eaten in Europe, and most of it be good, yet no beast furnishes animal food equal to its best kind with us.

The climate of Aconcagua is very bracing; and notwithstanding the very near approach of summer and the great heat of midday, I felt in the evening both hands and feet smarting from cold. I was much pleased in being able, from the public square and with the help of some *obstacles* in my way, to adjust a view very like that seen from the market place of Schwitz, in Swisserland, when looking towards its lake and highest mountain scenery. But it was the central ridge of the Andes only, in what I have seen of them, which sometimes, and at a considerable distance, offered objects of comparison between them and the Alps, whose superiority in variety and majestic boldness of forms, clothing of bodies, and snowy head caps, was not found less on the western side of this enormous chain than on the eastern.

I took here a guide who was an intelligent practical small farmer, alternately employed for others and himself, and from whose farther information I remained satisfied, that the return of wheat and barley in this basin was about twenty five for one. Some country gentlemen had rated it at thirty, but had at the same time informed me that, at Colina, it would be found from forty to fifty, an expectation which was not at all realized, though certainly a spot rather superior than inferior to Aconcagua, and in which that return may be between twenty five and thirty. The ride through the basin was interesting: wheat, barley, beans, melons, some potatoes and maize, were in vigorous growth; and near its habitations stood vine, apple, peach, orange, and other fruit trees, the full bearing of which I had an opportunity of seeing again afterwards, and could not before have justly conceived: the fruit hung to many large stems as well as to small boughs and shoots, and stuck to them almost as thickly as there was room for it: it was in short nearly all fruit and branches, with very few leaves: the trees were bending down again to the ground on all sides, and many boughs were half broken by the weight of their loads. Here were truly exhibited horns of abundance: but with a sad disorder in both the dwellings and the land about them. Much red pepper is cultivated in this spot: it is ground, put into small bottle-gourds, and sent out for sale.

So soon as the proper level for irrigation was left, waste and nearly barren tracts

were again met. I had an opportunity of once more observing the remarkable and metallic appearance of the mountains from that of Chacabuco; and having arrived at Colina, we entered the Andes through its valley, for the purpose of seeing the baths of the same name, situated some way up the lower mountains. But as the estate of Peildagua, which belongs to monks of San Domingo and which I visited during a following excursion, afforded me a little more observation of the agriculture of this country, I shall here describe what I saw in it.

A large hacienda or country mansion, in Chile, usually has adjoining it several spacious areas called *patios*, which are enclosed by mud walls erected after the manner already described. Into one of these the cattle destined for slaughter here had been driven: the beast were singled out with the lazo, and pulled or dragged by a horse with its rider into another patio, where was the slaughter house, with stalls, drying poles, tenters, and other furniture, which gave to this part of the premises the appearance of a meat market. The beast killed, the flesh fit for drying was torn off in its natural layers, and hung to the sun until it was in a state to be put up. This was a busy and sanguinary scene, and we left it for the inspection of a spot, which to an European had a more rural appearance, the grape tanks and the wine cellars: these were spacious, and held a considerable number of earthen jars, each of which might contain about seventy gallons; very well shaped, and strengthened by strips of hides outside of them, first moistened and then left to shrink tight by dissication. Next to the cellars were what answers here the purpose of wine-presses, two stone tanks, about two and a half feet deep, six wide, and twelve long. Into them are brought the grapes, which are well trodden down: the must is received in cisterns, and afterwards put into the jars, where two kinds of wine are made from it; the one of which is called *chicha*, from an Indian name which appears to have been used in most parts of North and South America, for a malted drink made from germinated maize, and for some other fermented liquors. This chicha, which undergoes an imperfect fermentation, is of a raw, sourish and unpleasant flavour; unfit to be kept longer than a few months, but drunk in abundance by labouring people.

The other kind is that alone which here bears the name of wine: for making it, some of a former vintage is boiled down till it is reduced to the substance of liquid honey; one part of this is mixed with three of unboiled must, and the mixture is left to undergo fermentation, after which it becomes a very thick, sweet, heavy and unwholesome wine, of which seldom more than two or three glasses are generally drunk in the day. This latter kind may be kept several years. Another beverage is sometimes made from the grape, by only boiling the whole of the must a certain time, and this will keep a year; but it is as bad as the rest.

I went into the large vineyard, wondering how the delicious grapes of this country, with a clear juice and thin skin, could produce so bad a wine as the chicha; for as to the other sort, the addition of the boiled syrup was sufficient to account for it: but the inspection of the vines soon appeared to explain this. These trees, in Chile, are generally planted in rows, and in channels where flows the water intended for irrigation; about eight feet one way and four the other: each vine is tied up to strong poles, and these are connected by sticks fastened to them, more commonly lengthways only, but sometimes also across them, so as to form bowers, and along them run the new branches, the tree having first been pruned, in the latter end of autumn or beginning of winter, down to only two or three of the most knotty shoots of the last growth, which are not left of a greater length than about a foot: nothing more is afterwards done to the vines, and the space under them is luxuriantly covered with lucern, which I found here so high, that a part of the grapes was not only deprived of sunshine, but choked by the grass and their own foliage. The consequence of this was, that a considerable quantity of them was still very unripe and sour, that many had attained full ripeness and a very fine taste, and that some were already past maturity; and, as the nature of the climate would not allow the latter to rot, their flavour was changed into that of a very pungent but pleasant vinegar. All this was soon to be gathered and promiscuously put into the tanks, from which no good and properly fermented wine could be expected: the grapes which could not ripen, and those which had already undergone a strong acetic fer-

mentation, would naturally spoil the whole. Were the lucern cut away in proper time, made into hay if not immediately wanted, and the vine trees dressed, so as to allow the grapes to attain maturity as equally as possible, their wine would probably be very different. It may also be supposed that the wide opening of the jars leaves the fermenting must too much exposed to the effect of the atmosphere, and that either a more limited admission of it, or the new method of close fermentation, might greatly assist in improving the chicha or natural wine. The vineyards of Chile usually form one single extensive enclosure in every estate; the bunches are very large and thickly set, chiefly consisting of red grapes.

Mr. von Kotzebue, who visited Concepcion in the beginning of the year 1816, takes notice of the delicious wine which he drank there. Perhaps in that spot, as at Mendoza, some individuals have turned their attention to its improvement, and have succeeded in it; or the custom which prevails on the banks of the Itata near Concepcion, of letting the vine shoots bend down and naturally spread over the ground without props, contributes to induce a more general and equal maturity: both these causes may probably help some of the wine made there; but if much of a good quality were produced in that part of Chile, the wine of Mendoza, very little better than that of Santiago, would not be brought to that capital and find a sale in it. The grapes all over Chile, when ripe, are however of the finest taste, and seem only to want more attention and skill to yield some of the best wines: it is not even improbable, that if the sweetest and most luscious berries were culled from the others, as is done in some parts of Hungary, a juice not inferior to the famous Tokay might be obtained. Nature has in this as in other features favoured Chile in an extraordinary degree; but the pleasure of courting her gifts by an assiduous attention to agriculture is not known here, nor is the extent yet conceived to which they might be obtained. Wine might become an important branch of exports, whilst at present it is so unpalateable and unwholesome, that if foreign settlers cannot get those of France or of Madeira, they prefer to abstain entirely from it. We often see means of wealth, not less distant in the reach than doubtful in their ultimate results, sought

in the midst of hardships or contended for in calamitous broils, whilst those which lie at our door, and whose success is certain, are thus neglected.

Brandy from the juice of grape, the consumption of which is considerable in Chile, principally among the labouring people, is made in many houses. The distilling apparatus for it consists of an earthen or copper boiler, to which is annexed an horizontal tube, several feet in length, whose end is made to pass through a cistern full of cold water which causes condensation, and the alcohol to drop into a receiver. As this brandy is seldom if ever rectified, the strength and flavour of it are inferior.

We observed in the lands of Colina a small number of fine large cattle. I had been told that in the saline soil of this spot grew the plant, *ocymum salinum*, from which it is stated in Molina's that salt was daily gathered; but I had no opportunity of meeting with it. The inhabitants of the few small dwellings seen in this valley, carry some of their productions to the baths, where I found two buildings with a gallery, each divided into about half a dozen rooms, whose walls were bare, and whose furniture consisted of an unclean table and a bench: sheds erected at some distance from these, served for cooking and for shelter to servants. The situation is very much contracted, and, with the buildings, constitute a gloomy residence: the want of space, accommodations and cleanliness, must greatly militate against the effects of the baths. Two families of Santiago, and in all about a dozen visiters, were here. This spot was called *Peildehue* by the Indians. The waters consist of two abundant springs, the one of a very high the other low temperature. It is said that the first is alkaline, the last sulphuric, and that when united, they deposit glauber salts: but I heard also, that they had not yet been exactly analyzed.

Once more at Santiago, I met with a very agreeable opportunity of returning to Valparayso, by another than the usual road, with an English gentleman, who is settled in the lower part of the valley of Quillota. The passage of the Dormida, the long mountain which forms the western boundary of the large longitudinal valley of Santiago, and which we crossed nearly opposite that of Chacabuco, procured us a near view of the rich golden hill of Tiltil, of many places excavated for gold in dif-

ferent parts of the mountain, of some fine contracted prospects of the Andes, of two or three pleasant groves where the wild cinnamon tree rose with great beauty, and of a spot formerly covered with many, but now with very few, widely scattered palms. Insensibly reconciled to the vegetation of Chile, beauties were discovered where none would before have been found; an effect in some degree like that of a sudden change of fashion, which at first displeases, and afterwards becomes the subject of admiration: the dress, which in Europe had been of a full and lively, was now of a dull and brownish, green cloth: its embroidery, from being rich in tints and thickly set, had become thin and of faint colours. The pass of this mountain might be about four thousand feet above its base: nearly on the summit of it were some large greyish white masses of rocks, bedded in clay slate, which, from strongly growing but perhaps ill founded impressions, I supposed to have originally and chiefly consisted of deposits of calcareous shells. It is said that the most productive mines of Tiltil have only been abandoned because of the accumulation of water, and that it was contemplated by some British settlers to make the trial of a steam engine here, and again to work one of them.

We heard some extraordinary musical notes from an instrument which sounded like a large flageolet, but very harshly and disagreeably modulated: it was Indian music from a wooden pipe, and we went by a few cottages or ranchos inhabited by unmixed descendants of the ancient Americans, of whom very few remain in Chile. No essential difference was observed between them and the mestizo races; but we only passed by them. The scanty stream of Limache allows the cultivation of some grounds, in the straggling village of the same name on the western side of the mountain. We afterwards travelled over a considerable tract of waste table lands, very similar to those above Valparayso; and, having met with but little agriculture and population during our journey, we descended to Concon, the hamlet below Quillota where my fellow traveller resided, and where I was very kindly entertained by him. I had here the pleasure again to find myself in company with an English family, a member of which was one of the ladies with whom I had crossed the sea in the

unfortunate Achilles, and in a house where the plain Chileno structure was united with many foreign comforts.

We went and saw the corn mill which this gentleman had lately got erected, on an English plan; a work very complete, and, for this country, new and extensive. The water, brought from the river Quillota, turns an undershot wheel, which works three pairs of stones. The intention is principally to supply Valparayso with the best flour at a cheaper rate, by saving much of the labour hitherto required here for this purpose. The corn mills of Chile are of the most simple construction. A vertical shaft, which holds an horizontal spoon-water-wheel, such as has already been described with the silver mills, passes through the bed stone, and to it is fixed the running stone: by rising or lowering this shaft, the mill grinds finer or coarser. A wooden ring encloses the stones, except where the ground corn gets out into the box placed to receive it: above the running stone are two troughs, the undermost of which receives the grain from the upper, and has a stick fastened to it, which bears on the runner, and is shaken by it, so as to cause the corn to drop down and pass through the centre of that stone, more or less as the stick is more tightened or loosened. About ten years ago, some British merchants introduced here bolting machines, and were by them enabled to effect the separation of the flour from the bran and pollard, and to supply the shipping with it and with bread, by which undertaking gains comparatively considerable were made.

I found the hills above Valparayso already burnt up. So soon as winter is over, this town lies under a very annoying inconvenience, that of the dust daily blown down into it from the hills, which is so abundant and so fine, that during many hours in the day, it is not only most troublesome abroad, but penetrates very plentifully into every room, however retired. This, like all the other little towns on the northern roads, is built with adobes; the want of space here has induced several inhabitants to venture upon a first floor with a gallery, and small dwellings begin fearfully to rise on the steep declivities of the hills, where some spot of level ground can be found for their erection. The walls are usually blanched with an earth found in the

neighbourhood, which is fit for the purpose without preparation. A shaft was once sunk for gold, immediately above the port, but the mine not being productive was soon after abandoned.

During the few months of my residence here, I counted, exclusively of the small navy of the Government of Chile which sailed to Peru with the expedition, from twelve to sixteen vessels usually in the bay, and generally consisting of a British frigate, sometimes of another from the United States; of two or three Bengal or China ships; occasionally of a whaler; of one out of two or three brigs under the Chileno flag, engaged in a coasting trade with Concepcion, Coquimbo, Guasco, and Copiapo; and the rest, of foreign principally British ships, with European goods, destined for the markets of Chile and of the coast of Peru, or for carrying to and from different parts of South America their respective productions. From Bengal and China are brought here calicoes, muslins, nankeens, silk stuffs, sugar, rice, furniture, porcelain, a little tea, and some other commodities; the return for which chiefly consists of gold, silver, and copper, the latter of which metals is called for at the northern ports. The consumption of cotton goods of Asiatic manufacture is now considerable in Chile. In exchange for copper utensils, leather, dried beef and fruits, tallow, grease, cordage, wheat, nuts, and other provisions exported to Peru, are received from thence sugar, Guayaquil cacao, tobacco, cotton-wool, a little coffee, an article seldom used here, salt, and a few other commdities. Wheat is also sent to Buenos-ayres and Brazil, but the chief exports of it are to Peru. Before I left Chile, some British vessels had been sent by merchants of Valparayso to New Shetland, for seal skins, an article which had lately found a good market in China.

Next to the produce of the mines, the supplies of wheat sent to foreign markets, and the bread, flour, pulse, vegetables, some cordage, and other articles, furnished to the ships which are so frequently changing and replacing each other in the bay, form the most advantageous sources of gain to Chile; and although, on the the whole, their amount be not considerable, yet, when the smallness of its population and cultivated lands is observed, how it can be so much as it is, becomes a

problem, which can only be solved by the very limited consumption made of them by the inhabitants, compared with the produce of their lands. We find in Frezier's, who visited Chile in the year 1714, that the price of wheat was then from eighteen to twenty reals a fanega. In 1821, the same weight could be purchased in some spots for two and a half; but this first cost was increased to nine, by an inland carriage of four reals, and a duty of two and a half, before its exportation from Valparayso to foreign countries: an indication this, of the little inducement yet felt by the grower of corn to extend the cultivation of it; for, even when the markets of Peru are more generally open than they were in that year, the price obtained by him is too low for rendering this pursuit profitable. Neither in it, nor in that of mining, can much progress be expected, until the very heavy duties and expences attached to them are considerably lessened. The settlement of industrious foreigners in Chile is undoubtedly a great advantage, to a country so thinly inhabited, and in which considerable resources are yet but very partially availed of: but a still greater benefit to it would be, to extend the scope for the industry of the Chilenos themselves, and to offer to them such encouragement and means of improvement as would prevent their migration. Many families, after having shifted their reed ranchos or huts from place to place, finding no spot of land which they can hold for any certain time, to which they can attach themselves by any other ties than that of a dependence verging on slavery, at last cross the Andes, and settle at Mendoza, San Juan and other places, where both their domestic and civil state at once becomes better in a foreign country than it was in their own.

The sales of British manufactures in the towns of Chile extend to a great variety of articles, but most of them for a limited amount only; and the principal gains on them are probably made by those who retail them out. The wealth of the country is too inconsiderable and too much concentrated, to allow a great consumption of foreign goods. Many vessels from England, after selling here what they can, sail again for the coast of Peru with the chief part of their cargoes; and there, it has not seldom happened, that the expectation entertained of very extensive means

of consumption, and of a large population for it, has been disappointed. The principal returns to Europe and the United States from Chile, are gold and silver, with the bills drawn for the supplies of the foreign ships in its ports, chinchilla skins, copper, and a little tin. Hides not only cannot be procured in important quantities, but the long passage by sea very much exposes them to be injured by heat or insects.

Nearly all the provisions required for Valparayso and the shipping in the bay, are supplied from Quillota, Casa Blanca, and Melipilla, by small farmers who daily come to its market on horseback. The latter of these small towns stands on the river Maypo, and on one of the roads from Santiago to Valparayso; fifty four miles from the latter place: its population, which may be estimated at about fifteen hundred souls, is said to be industrious: the two former are distant from thirty four to forty miles. There is at present no regular communication between this port and Chiloe, from whence the principal commodities formerly received, were hams, salted fish, ponchos, and the fine light and useful red wood which has before been described.

There is but little intercourse between Valparayso and the two islands of Juan Fernandez. The larger of them, renowned as the residence of the fabulous Robinson Crusoe, and of the real Selkirk, has a small Chileno fort, and occasionally a few inhabitants. Ships sometimes touch there to lay in a stock of fuel; and the Government of Chile has lately carried on a small fishery near their coast, where the fish is good and abundant: it is dried, and brought here for sale.

In the Plate No. XIX. is shown an hacienda of Chile. Corn is thrashing in one of the patios or yards, and in another is seen cattle drawn into it from the corral with the lazo, and slaughtered: layers of flesh are drying in the sun. In front is the shop of the mansion: a woman with flowers and a milk boy are going to market. The background represents the vineyard, the garden, the orchard, and a part of the chain of the Andes. These haciendas often form a complete square, the front of which consists of the shop, the steward's and store houses, by which their appearance is much impaired.

Sketched by P.S. Brown on the Spot by G. Scharf.

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TIMBER and IRON BARS conveyed by MULES.

CHAPTER XIV.

DEPARTURE FROM VALPARAYSO.—MORE EXCURSIONS FROM SANTIAGO, AND FARTHER DESCRIPTION OF THAT CAPITAL.

IN the latter end of December, the beginning of summer here, I took leave of Valparayso, and returned to Santiago by the high road, through Casa Blanca, of which the Plate No. XX. represents a distant view. A troop of mules, loaded with iron and timber, is seen on the way: these articles are transported by fastening on each side of the beast a bundle of iron bars or a piece of timber, which, bearing on the ground, are thus dragged along, with a friction which greatly increases the labour. Mules have been blindfolded, an operation always performed with the poncho, before the load is put on, taken off or adjusted, by which the beasts are kept quiet. Two peons are seen with worsted boots on, which are much used here, particularly for crossing the Andes. Two master muleteers appear in their best riding dresses: their stockings are made of a bright red or blue worsted, and their spurs of silver; the bridles of their horses are ornamented with it. Large wooden stirrups, having a small socket to receive the end of the foot, are peculiar to this country, where formerly, when it was more thickly covered with small trees than now, and without the cattle roads which lead through its vallies to the Andine pasturages, such stirrups must have been very necessary to save the feet from hurt: they are likewise of use for riding in the broad vallies of the lower lands, as the willows are kept down by them: those of the higher classes are shaped like our own, but much smaller. The saddles of Chile are similar to those of the pampas, already described. Ladies and all other women sit sideways on theirs, which are made like an armchair, and usually of a much ornamented workmanship. The Chilenos are very good riders; they far surpass Europeans generally speaking; but it is said that

the Araucanos still excel them in horsemanship. An extraordinary suppleness and elasticity of limbs appear singularly to fit the inhabitants of these parts of South America for this exercise; and after some residence among them, European riding looks stiff and graceless. The Araucanos cross their deep rivers by holding the tails of their horses and swimming with them. The many cloths and skins under the very light Chileno saddle, render the seat very easy, and so wide, that the lower limbs of the riders often become permanently bent out by it.

Again in Santiago, a gentleman of North America, Consul in Chile from the United States, and I, set off on horseback for an excursion to the southward, which was the source of much gratification and of farther information. By ten o'clock at night, we reached the estate and mansion of Don Francisco Tagle, having previously resolved to disturb no one during our journey, except stewards and cottagers for some provisions: but the mayordomo insisted on informing his master of our arrival, and the latter on our going in. Don Francisco, who was with his lady in a large and well furnished apartment, received us with the most refined politeness. A supper was soon announced to be waiting, and found of such abundance, as to indicate culinary offices ready to produce an excellent fare at a very short notice: two good beds were prepared for us, in a chamber where a library of select works and various costly things were left entirely exposed, though we were unknown to him, and had no other retinue than a peon. This gentleman told us that some time before, a foreigner, who had requested to be received for a night, had shot himself in his room; and we assured him, that it was not our intention to put him again to the same inconvenience. The next day we were shown the gardens, commodious baths, and one of his patios which was to be a very considerable tan yard: another instance this, of the course given to all principal branches of business here, by which they chiefly remain in the hands of the wealthiest people. A great number of pits, and some heaps of bark and roots, were only waiting for hides.

Tanning is making considerable progress at Santiago, and several yards are already established there. The hides are commonly prepared with lime water, and

when destined for soles and stout leather, tanned with the bark of the tree called *peumo*, and for thin leather with the root of the *poquel* or *panke*, after being macerated. The many purposes to which this latter plant is applied, render it one of the most useful, as its roots, besides the astringent tanning principle, yield a deep black, its flowers a yellow and its branches a green die; the wood is preferred by shoemakers to all others for lasts, and good durable ink may also be made from the roots. The hides are left three or four months in the pits. With the climate of Chile, leather needs no great degree of perfection to wear well; and with very little more skill on the part of the shoe and boot makers here, these articles will attain nearly the same appearance as those which are made in Europe, where the accelerated processes for tanning, bad sewing and other causes, have done much injury to this branch of trade with South America. The calves slaughtered for food are so few and so small, that their skins are not tanned for upper leather, which consists of the thinnest hides shaved down to the substance required. In the country, the poorer inhabitants either remain with bare feet, or wear shoes made by themselves, of a piece of hide rendered soft, which is tied so as to turn up the heel and over the foot. Goat skins are dressed in Chile and made into a morocco leather, which fails both in the grain and die, but yet looks tolerably well. Some kid skins are also dressed in many cottages, and made into bags for holding hierba, sugar, and money: they are died externally of various colours and patterns. Gloves are but little worn yet, only by the wealthy, and are imported from Europe. At Rio de Janeiro, where tanneries are also beginning to rise, hides are made into leather by means of the leaves of a particular tree, whose smell, after a little fermentation, is very like that of oak tan, and astringent quality, I was informed, very effectual: they must first be reduced to small fragments, an operation of long and expensive manual labour, and for which endeavours have been made to substitute machinery.

Don Francisco led us through walks, on each side of which were plantations of orange and lemon trees: these, as likewise the vine, fig, olive, and other fruit trees, are raised from slips, set along a watered channel, and will not produce good

edible fruit when grown from seeds, which, on the other hand, will yield plants bearing tolerably good peaches, apples, pears, plums, almonds and nuts. Grafting is practised by a few inhabitants, who wish for the finest fruit. Orchards are, like vineyards, usually undergrown with lucern grass; but, owing to the height and distance of the trees, are, unlike the latter, rather benefited than injured by it. The oranges and pine apples of this country are large, sweet and of a fine flavour. A big yellow peach is the most esteemed, but its flesh is very compact: this fruit here does not melt when eaten, and requires too much mastication. Apricots, figs, olives, walnuts and chestnuts are good; but this I cannot say of cherries, pears or apples: the latter are stated to be better at Concepcion. Strawberries are remarkable by their large size only. Of all the fruits of Chile, the water melon holds the first rank: it suits both taste and climate so well, that satiety is seldom felt.

The river Maypo is seldom too much swollen not to be fordable, but we passed it on a suspended bridge, of Indian construction with hide ropes and reeds. These bridges swing much when walked upon, but are not dangerous. Beasts, after some reluctance and trouble, are driven over them: there exist very few of them in Chile, and only two or three ferry boats: the former were probably introduced by the Peruvians. At dusk we were denied at the next seat on our road; the house was repairing; the owner said to be absent; no room empty; in short, we were not to sleep there; and so is the mind tempered, that, although we had started with the resolution of not causing inconvenience to any family, and were here in some manner only reminded of it, yet, whilst riding in the dark in search of a cottage, the owner of the mansion received a full splashing from the burst of our disappointment, at the loss of the good entertainment which we had already seen set before us; but Don Francisco, by his kind reception, had begun the work of spoiling us, and it was shortly completed; for when, the next evening, we reached the seat of the Marquis of Casa Larrain, and the door of it with our baggage, his lady, who was standing on the threshold, immediately sent to desire that we would alight and go in: we stated that our object was to see the country, and were making apologies, when she checked us, and said

that she wanted none, as they were very glad to see friends or strangers, and as she had actually been waiting at the door to look if any were coming.

After a good repast and rest, chocolate was sent to us in our apartment for breakfast, which, as already observed, is not the time for eating much in this country; but this deficiency of the animal supplies required by many foreign constitutions, was soon to be fully made up. A ride was proposed in order to see the vega, a large piece of natural meadow land, very valuable, and seldom met in the estates of Chile, unless it be near its southern limits. Here a very different scene from all that I had hitherto observed in this country was exhibited: the ground, naturally moist, was covered with fine grasses, and on it was grazing a very large number of cattle, which consisted of oxen, cows, horses and mules: the sight was very like that of an extensive tract of common meadow land in England, but of a darker or brownish green. Although several lucern grounds lay not far from this spot, yet I could not discover any of this grass in the vega, a circumstance which, if there really be none, seems farther to indicate, that it is not an indigenous plant here, and will not grow without being sown in cultivated lands. A very small yellow clover was abundant.

The owner of this hacienda possesses others, and is one of the greatest landholders in Chile, with about fifteen thousand heads of cattle, a number which, if any where equalled in Chileno estates, is probably no where exceeded. In August or September the cattle are sent up the lower mountains of the Andes, and in November to the higher pasturages of the cordillera, from whence they return in April. The beasts with young, and those of a tender age, are as much as possible kept near home, and the latter suffered to ascend the Andes, only when sufficiently strong to become less liable to be attacked or overpowered by lions. The *rodeo*, which is performed once a year on every estate, consists in bringing all its cattle into an enclosure, where they are numbered and marked, and where all that may be required for their propagation, the sale or slaughter of a part, and for the benefit of the grazing concern, is done; so that even the finest saddle horses in Chile are branded with the stamp of the estate on which they were bred. The corral made for this rodeo, sometimes lies in very

high spots up the Andes, and consists of a large piece of ground enclosed by a stone wall. This rural business, which lasts a few days, becomes a kind of festival, by a concourse of tenants, peons, and occasionally of the owner's and other families.

On our return from the vega, at one o'clock, we found a most splendid dinner waiting for us. The family Larrain, some friends and ourselves made a party of about fifteen people; and fifty two different dishes of soups, fish, meats, poultry, wild animals, vegetables, jellies, creams, blancmangers, and many others of refined delicacy, were counted by my travelling companion, exclusively of the dessert; a total which we were able afterwards to prove by recapitulation. The rotation of courses was necessarily brisk and frequent, but its rapidity could not prevent a prodigious load of food. Only female servants wait at table in Chile, and without the display of any ostentation. Plates are changed with dishes, as were also, in this instance, silver knives and forks. There dined in the same room and by himself a kind of jester, a person of very weak intellects, to and from whom the greater share of conversation during dinner was directed and drawn: alternately frightened, teazed and pleased, he cried, was angry or laughed; and as all these emotions were natural in him, we found them much more painful than entertaining. After dinner coffee and siesta followed; then a ride out; next abundance of ice creams, and lastly a copious supper. The rooms were well furnished, but without splendour: the garden, into which the principal of them opened, was large, and consisted of straight walks and borders, lined and covered with vine bowers and many other fruit trees, numbers of flower pots in rows, and large stone channels across the ground for irrigation. A very extensive and irrigated potrero, or lucern enclosure, thinly studded with algarobs and espinos, lay near the mansion, where some large cattle were pasturing, and fattening for slaughter.

Former titles still remain attached to some elder branches of families and to a few estates in Chile, but without conferring any political distinction. In most of the large country mansions resides a priest, and a small school is kept, but hitherto more in name than reality. Among the children of the Marquis was a handsome

girl, tall, stout and apparently grown up, yet only eleven years of age. It is worthy of remark, that the female sex, in this country, commonly attains womanhood when between eleven and twelve years old, but that the male does not make much more rapid progress towards puberty than in northern Europe. This very striking difference, perhaps only artificial at first, may, by very early connexions on the side of women alone, have afterwards gradually increased and become hereditary. Female children of the higher classes are taught here from their infancy how to dress, look and behave like ladies, and this, with a few exceptions, constitutes the principal part of their education. Whenever I attempted to lift up children of this description, six or seven years old, play or laugh with them as is done with us, they stiffly drew back; but, treated as a woman, a little thing, not higher than a cabbage, would look mightily pleased, climb and sit upon a large chair, and there with a fan ridiculously imitate her mother.

After having been most politely and handsomely entertained by the Marquis and Marchioness of Larrain, we left their hospitable mansion for Peyne, a spot farther to the southward, where the supreme Director of Chile had gone to spend a short time and bathe. On our arrival there, his Excellency very kindly insisted, that the Consul should take possession of a large marquee pitched for him in front of his apartment, but which he did not intend to use. In it therefore we spread our blankets. There were with the Director some members of the Senate and ministers of state, several officers, gentlemen from Santiago, and the life guards. The morning was destined for bathing, riding out, or transacting business. An early and very frugal open dinner, in the house where he resided, was followed by a siesta, after which a tertulia took place and dances were performed: only one card party, consisting of the Director and three other persons, played at manille, *malilla,* which is the whist of South America, and the band of the guards gave, from the patio, dancing and other tunes pretty well executed. Ice creams and other refreshments went round, and, the tertulia over, a very plain but sufficient supper, to which sat down all visiters ꝺ, ended the day's entertainment.

The Director has a pleasing and cheerful countenance: he has fought for the independence of his country in several hard contests, and lives in a plain unexpensive style, apparently from taste as much as from any other cause. He was born in Chile, and sent by the Viceroy his father to England for his education, which was effected at Richmond; and he can speak the English language. His Chileno mother and sister, and an Irish uncle, were with him at Peyne. In the capital they hold tertulias, on nearly all except theatrical nights, where a stranger who has been introduced may go, and is very politely received. The Director's house, which is a spacious but not a splendid residence, adjoins the principal public offices, in which he usually remains during the hours of business, in a large state room, where he receives those who may wish to see him; and the whole is called the palace.

We visited the small lake of Aculeu, which is a fine spot, but needing more habitations and cultivation; for, generally, in all the near views of this country, the want of a more decided character is felt; they are either not smiling or not wild enough. This lake is shallow, but branches out between some pretty hills. Great numbers of birds were on it, and among them the beautiful flemingo. The land around it was thinly studded with small trees, chiefly algarobs. We did not find here the inns of Windermere, or that of Interlacken; nor the singers of Brientz: the greenish brown tint of a thirsty landscape would not allow us to fancy ourselves on the banks of a British or Swiss lake, and the disjointed fragments of a very lean fowl, which were to distribute savour to an endless broth, did not please organs which had lately been vitiated; but our breakfast acquired relish from the good humour and disinterestedness of the cottagers.

Having returned to our tent at Peyne, we soon again left it for the baths of Cauquenes, still farther south. As we advanced in that direction there was a less scarcity of water, and the tint of the land had a little more green in it; an indication, that if our excursion had led us nearer to Talca and Concepcion, we should have found the southern extremity of Chile better corresponding with the indiscriminate description which has, in several instances, been given of the whole country. But thougl.

gifted there with more moisture and natural vegetation, yet it is stated that, even in Arauco, which lies between the 37th and 40th degrees of south latitude, artificial irrigation is still required. I had heard much in praise of the agriculture of Rancagua, but what little there was of it, appeared inferior to that of Aconcagua and Colina. This small town, also called Santa Cruz de Triana, may contain about eighteen hundred inhabitants. We were very hospitably received by Don Diego Balenzuela, who possesses a large estate and mansion near it, and who breeds silk worms, at present as an experiment only. The next morning we continued our journey for Cauquenes: but before we leave Rancagua and the Concepcion road, for the purpose of entering the Andes in a southeasterly direction, we will take a survey of that road, on which are found the chief towns and population of that portion of Chile which lies to the southward of Santiago, whose structure differs much from that of the northern provinces.

From the desert of Atacama to Quillota and Aconcagua, the mountains below the chain of the Andes rise in such various directions, and are so connected with it, or with each other, that they form fine bowls and vallies all the way: but from Aconcagua to Concepcion, Valdivia, and, it is said, the straits of Magellan, they offer themselves in gradually more distinct and disengaged longitudinal ranges, with nearly uninterrupted plains or wide level vales between them, a circumstance which, with the gift of more rain, very much facilitates irrigation, because the rivers, forced to run a considerable course before they can direct themselves westward to the ocean, lend the use of their waters in different ways along a great extent of country. Communication and carriage are by the same cause rendered much less laborious; and were it not for the want of bridges, coaches and carts might easily be used on this road, for the conveyance of travellers and merchandises: they however may be, and sometimes are, employed, but with the necessity of often going much about, for the purpose of fetching the passage of the rivers, before they unite, and are rendered too deep to be forded with safety. The productions of the land in this southern part of Chile, might be carried by water to Valparayso and other ports with great facility. This road passes from Rancagua through Colchagua or San Fernando, all the way to which

from Santiago are many chacras or small country seats, beside some large haciendas. From thence it leads to Curico, Talca, and Chillan. Each of these towns contains from eighteen to twenty two hundred inhabitants. Some gold is obtained near Talca. In Chillan the Jesuits had established many convents, and a college of the *Propaganda de la fe.* The next town after this is Concepcion or Mocha, formerly Penco, a bishopric, and a city whose population, including its port Talcaguano, is said to be about ten thousand souls. This portion of Chile is called the Italy of South America, and the land towards the Andes, exhibiting more verdure, with larger and thicker groves of trees, is compared to fine parks, below a beautiful mountain scenery. I heard from a man who had been employed in field labour near Concepcion, that the soil was less friable than in the other parts of Chile; that ploughs were made stouter, and went deeper into the ground; that the appearance and produce of corn were much the same as elsewhere in this country, but that cattle and fruit trees were much more abundant. The necessaries of life are here much cheaper than in the capital.

Although the Araucanos will probably continue to view with unfriendly feelings, any increase of Chileno inhabitants and strength in their vicinity, yet their numbers are now so much reduced, that the bay of Concepcion might become one of the finest and most productive settlements, were the population of Chile larger, more united, and attached to the land. The coast here, besides much clay slate and large masses of shells, is said to exhibit extensive rocks of an easily decomposing granite; probably of the same formation as that which has been noticed between Coquimbo and Guasco. The other Spanish settlements to the southward of Concepcion, except Valdivia and the island of Chiloe, have either decayed or been abandoned. Much gold was formerly obtained, and is yet supposed to lie, between the Andes and the sea shore in that part of South America. It has often been mentioned, that a mass of about forty tons of pure copper was found in the mines of Payen, and Frezier states that he was at Concepcion, when six pieces of cannon were cast from it.

The Plate No. XXI. is taken from the work of the famed and unfortunate French navigator, Mr. de la Pérouse, and shows the costumes of Chile in the year 1786.

From de la Pérouses. On Stone by G. Scharf.

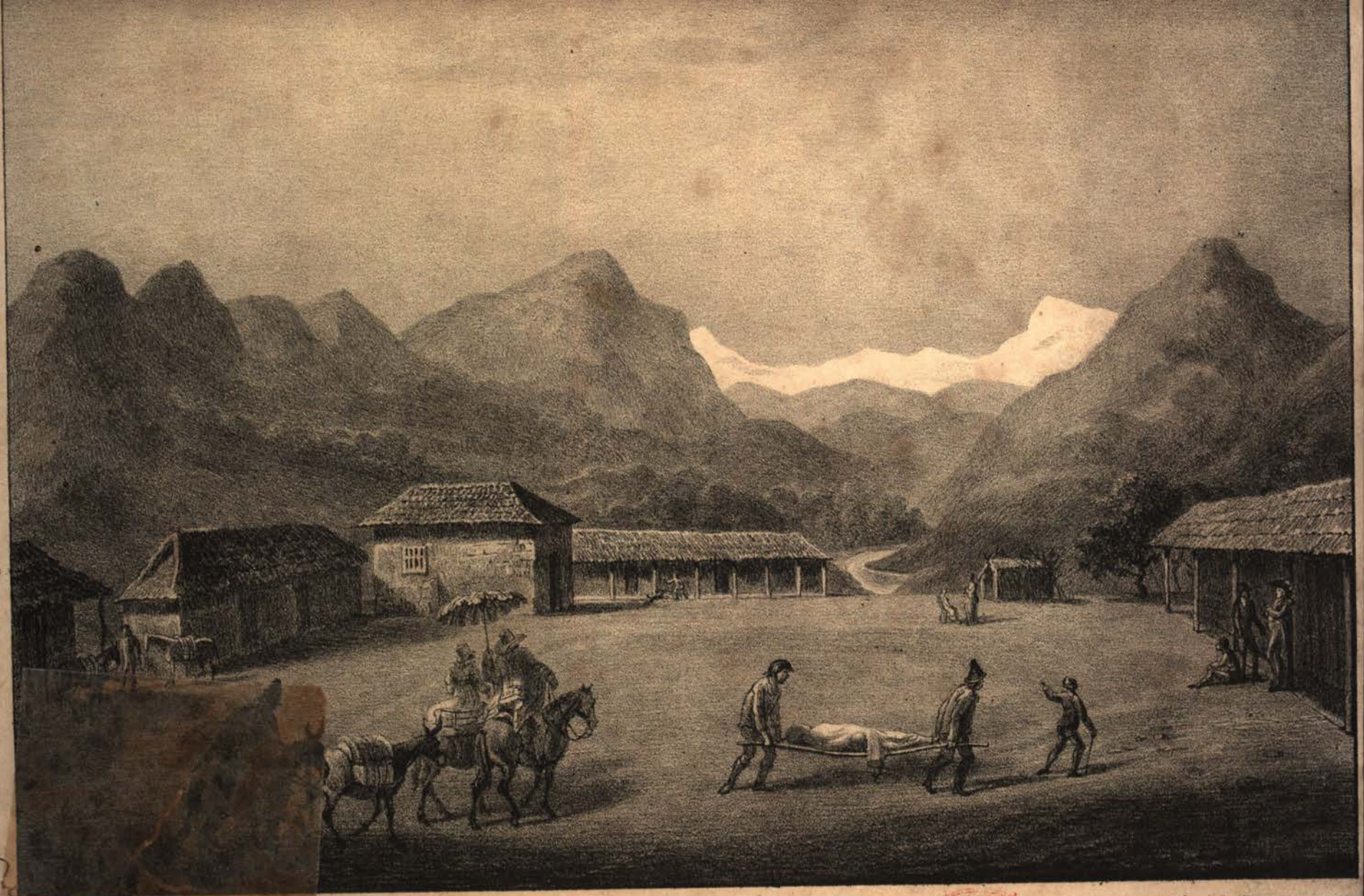
J. Boosey & Co. Lithog. 310. Strand.

COSTUMES OF CHILE, *1786.*

Drawn from Nature by General Paroissien — on Stone by G. Scharf

Printed by Rowney & Forster.

BATHS of CAUQUENES.



Drawn from Nature, by General Pareisien — on Stone by G Scharf

Printed by Rowney, & Forster.

BATHS of CAUQUENES.

Having left the hacienda of Don Diego Balanzuela, we expeditiously rode up a gentle ascent, on what would be called a good turf road, if there were any sward on this soil, and between thinly planted trees, in a valley of the Andes down which flows the Caciapoal, which is of much the same size as the Maypo, the united waters of which two rivers might produce a body not inferior to those of the Wye, and we soon reached the baths of Cauquenes, whose distance from Santiago is near forty leagues. A large square is there formed by small houses, which stand near each other, and look somewhat like Irish cottages: the want of cleanliness and comfort inside them all was very conspicuous; but the spot is elevated, very open and airy: the view of the mountains, of some fine and bold rocks, and of the river Caciapoal flowing below the baths with considerable rapidity, have a pleasing effect, which only requires a less stunted vegetation to be rendered very beautiful. Here are six convenient baths, whose temperature is graduated, by Farenheit's scale, at 83°, 103°, 106°, 112°, 117°, and 118°. Close by one of them is a cold spring. I was told that no trace of sulphur had been discovered in their waters, which have no nauseous taste, and may be drunk. We found here a party of English gentlemen from Santiago, with whom we remained a few hours, but hardly any one else; and after another welcome reception late the same day at Rancagua, we left it the next, again gratefully took possession of the tent at Peyne, from whence we shortly afterwards departed for Santiago.

The Plates Nos. XXII. and XXIII. are views of the baths of Cauquenes, one of the finest sceneries in Chile. They and the three following prints, are from drawings accurately made on the spots, with which I have been kindly favoured. The river Caciapoal is seen below the baths, which are in the small detached buildings shown outside the square, on the edge of perpendicular rocks, and very near each other. No. XXIII. represents the interior of the square, and the chapel within it. A person is brought back from the bath on a litter, wholly wrapped up in blankets. Travellers are arriving: the parasol held by one of them, is made of ostrich-feathers. Near Cauquenes are some mines wrought, and much copper nearly pure found.

After this pleasant little journey, I took several trips up the vallies and mountains of the lower Andes from the capital, each of about a week, on horseback with a peon: but we never ascended to a greater height than probably eight or nine thousand feet above the sea. Where habitations cease and cattle paths begin, it becomes necessary to take a vaciano or herdsman for a guide. Whilst going up, along the river Maypo, with the intention of seeing the pass of the Portillo, and arrived at the guardhouse, I was not allowed to proceed, because I had not a passport, though I only carried blankets with some linen, and offered to turn every pocket out. I regretted this the more, as the steepness of the central ridge is very considerable here, and would have afforded a better opportunity than the former, of seeing its structure. The works of the canal, already described, begin at the lower end of this valley, and by their magnitude and construction add much to the prospect, which only wants the assistance of more cultivation to be of a fine description. This canal is near thirty miles long, and, with the exception of its head, only consists of a broad ditch, over which the want of more bridges is much felt, as it is often found very inconvenient and difficult to ford. Along its left bank the ground slopes down, and is cultivated many fields deep: nearer to Santiago both sides are so, as is shown in Plate No. II. But though so conveniently situated, the standing corn near it had an appearance which indicated a very careless culture, and did not promise more than half the return of the best spots: some places indeed seemed hardly worth the labour of taking off their crops. On the 5th of February, wheat and barley were reaping here.

I found much the same features in all the small vallies through which these excursions led us. Their narrowness, irregular ascent and frequent turns, entirely distinguish them from the few broad channels which extend from the foot of the Andes to the sea. After passing by some small farmhouses and huts, which stand at the lower end and opening of these vallies, by the side of their rivers, human habitations generally cease; but in ascending, there are many spots which form little basins, or intersected table lands and terraces, which appear very fit for cultivation, and for the support of a considerable population, either with the assistance of their

rivers, or by a proper care and management of the streams which flow into them; and where the same features might be displayed as are seen in the Alps, under a climate here which may truly be called delightful. The higher Alpine vallies are of so rugged and so wild a cast, of so rough a temperature, that they look best without permanent population, the sight of which a traveller rather wishes to enjoy in lower and more genial lands; but here, almost all the way to the line of summer snow, are numberless places fit for human life, and the display of rural labour and industry. Indeed, as the Indian name of this part of Chile, *Mapocho* or *Mapuchue*, means thickly inhabited, and as the small sections of table lands seen in ascending the vallies, are so level as to indicate former cultivation, another instance seems here afforded, of ancient inhabitants much more numerously and widely spread than the present, and actively employed in agriculture; unless those broken shelves should be thought the work of waters only.

All the way up the chain of the cordillera, properly so called here, the mountains below that central ridge are of smooth and rounded forms, and between them wind in all directions, glens which offer a variety of pleasing near views. The main torrent generally fixes the boundaries of two immense estates, and on each side of it, a cattle path humours by its contours the declivity of the mountain along which it leads. Very thin patches of wild oats and barley with a few other plants, usually withered, are seen among small trees, chiefly myrtles, acacias and algarobs. In some moist and favoured grounds, where herdsmen probably dropped the first kernels, stand clusters of wild peach trees, heavily loaded with fruit of a good flavour. In a similar situation we once met with two or three *maquis*, somewhat like a plum tree, which bears a sweet berry, from which a refreshing drink and a violet die are obtained. As the chain is ascended, little else than a few quillais is seen; and in very high spots, an isolated tree of this species will form a parasol to the cattle, which in return contributes to the increase of its growth. Above these, and at a considerable distance from them, are found the Andine pasture lands, without any trees or shrubs, whose grasses, in many places quite glutinous, are not only very thinly but partially planted, except where

the ground is not divided from the snowy cordillera by the deep trenches along it, and has the benefit of more moisture. But for a farther description of the pasturages of the Andes, of ranges of mountains so high, so broad, and so much divided, would be required the knowledge of a botanist, and the experience of many a vaciano.

On them, after the journey of whole days, a stone fence for the rodeo, a hunter's hut, or a herdsman's shed, are all that can be found to remind a traveller of the summer villages of the Alps, and of the social intercourse which there cheers the labours of the husbandmen, whilst the cows are milking, the butter and cheese making, or the shepherds daily tending on their flocks. During all our excursions in the Andes we saw many guanacos, but, to my great surprise, no herds of cattle. A few dispersed oxen and cows, a flock of about four hundred sheep, and some mules led up to recruit their strength for each of which a dollar is paid to the owner of the estate, were all that we met. That there should be but few sheep in Chile cannot cause astonishment, as their wool is so inferior, and their meat so generally disliked.

Many opportunities occurred for observing what may at some future period claim the attention of the inhabitants of this country, when their number shall have increased, the considerable quantity of water which is lost to its small rivers by *manantiales*, or small bogs, on the mountains, where it is arrested and quickly evaporated, whilst every additional tun of it below would be of essential service. It is very probable that a still greater loss of it takes place along the whole line of the Andes of Chile, to the north of Santiago, and where it is most valuable. To avoid this, and make the streams freely run into the main rivers, would apparently, and to some extent, be a work of no great difficulty or expence.

The ride which afforded the finest view yet seen of the cordillera, of a long line of that central ridge, with one of its characteristic features, an indented edge, with deep narrow vallies below it, and of Tupungato rising loftily above the whole, was a spot of very easy access, on a mountain called *l'Engorda*, not far from a good path very much frequented by the carriers of snow, the consumption of which for ice creams, is very considerable at Santiago and elsewhere. These men usually perform

the journey in summer, to and from the line of snow, in three days: they load [redacted] asses or mules, well packed up and covered with straw, and the capital is daily supplied with it. In riding along and a little below the ridges of mountains under the central chain, many broad dikes could be seen to traverse them, and at intervals to intersect the ridge: this appears to form a prominent feature in most of the mountains of Chile, whether high or low. The clay slate was very often observed. A much elevated spot was covered with white and deep red silecious stones, which the inhabitants below use for striking fire; but flints for fire arms are imported from Europe, as what are found in Chile cannot be split into the shapes required.

The summit of l'Engorda, so named from the fattening quality of its pasture, offers much the same point of view of the more abrupt side of Tupungato, as the *Allée blanche* does of that of Mount Blanc, but with a very different effect. There, the latter exhibits stupendous walls of hard rocks: here, Tupungato shows the steep and undulating declivity of a prodigious mass, whose smooth surface appears covered all the way down from the line of snow, with a loose substance of white, grey, and reddish tints, the former of which predominates. The huge fragments which have been detached from the walls of Mount Blanc, partly concealed by the tall pines growing among them, form a scenery, of which a large torrent renders the wild sublimity such as to gratify the beholder with some new feature at every step: but Tupungato, though rising very majestically and to a far greater elevation, presents its crumbling mass crude and naked, down to the bottom of the deep and still nearly arid vallies by its sides; these profound ditches being themselves high mountains. Here is an immense, inanimate but magnificent view of desolation. The pasture ground below the ridge, too thinly planted and of too brown a tint, has not the gracious smile of blooming youth, nor the cordillera the stern look and venerable wrinkles of age. But, perhaps, the same obstacle may interfere between the Andes and the traveller, as did between the earth and Archimedes, who could not move it because he had not a place beside it on which to rest; and these mountains may not excite the admiration which they deserve, because the common observer cannot stand

high enough, or is too short sighted, for connecting their features and understanding their expression. Far from feeling a desire to wind his course along these higher vallies of the cordillera, he shrinks from the toil, and from the extremes of heat and cold, which he must undergo without an adequate reward. A naturalist, however, would not probably be so easily subdued. If the geologist could safely survey the more southern parts of this chain, where it lies under the effect of abundant moisture, the comparison of its structure, of the substances composing it, and of their arrangement, there and in these dry regions, might afford him the more interest and knowledge, as the origin of all, what and whenever it may have been, seems evidently to belong to the same cause and period. But much time is likely to elapse, ere the Indians can understand such a purpose, and will allow it to be pursued.

When we observe how bountifully some European plants have multiplied in the low lands of Chile; the little care required by the lucern for yielding the most abundant and useful food for beasts; the now spontaneous growth and bearing, here or in Arauco, of the peach, apple and other fruit trees brought by the Spaniards, we are led to think that many of our forest trees would thrive well in the Andes, and be a valuable gift to this country, whose woods are gradually suffering a very sensible destruction: for, although dryness and sterility form a principal feature in several parts of it, yet many spots in its high vallies and declivities are naturally moist, and, if not wholly covered with powerful vegetation, at least apparently susceptible of it, as if rather in want of fit plants than of the means to support them well. The trial of European seeds might easily be made by herdsmen; and were it to succeed, one of the many essential benefits which would arise from it, might be the extraction of iron, a metal which must be imported at a considerable expence, owing chiefly to the want of fuel; as the southern parts, where trees begin to thicken, are insecure.

With the exception of the time spent during these excursions in the Andes, I passed the summer in Santiago, with a sunshine which only suffered some slight interruptions from transient clouds. Two or three very slight shocks of earthquake took place in that period. Fahrenheit's thermometer usually stood, at half past one,

o'clock P. M. and in the shade, at about 85°. An hour or two afterwards the breeze began to rise, and shortly the effect of it in restoring animation and vigour was most sensibly felt. By nine or ten o'clock at night the thermometer had usually sunk to 58°; and in the morning, till about ten, the air was cool and pleasant; often of a raw feel, which the Chilenos dislike or fear so much, that, in travelling, many of them are seen with their head and neck thickly wrapped up in kerchiefs, until the sun becomes scorching. Owing to the extraordinary dryness of the atmosphere, bodily perspiration either does not take place here so abundantly as elsewhere, or is so quickly taken up, that it is not felt in the same degree: during rides or other exertions which, with the same heat, would have been intolerable in Europe, and would have moistened several folds of clothing, it might have been doubted if there existed any perspiration at all. In winter a very thin crust of ice or snow is seen at Santiago, both of which disappear as the sun rises above the Andes.

After having long been accustomed to the frequent changes of a northern European climate, it is with difficulty that the mind is brought to expect, with every successive morning, a clear sun, rising, and performing its daily course, almost without a vapour, for weeks and months without interruption. This at last creates a strong desire, that some dark grey clouds would come and throw more softness and variety over the landscape of the lower lands of Chile, cause shifting accidents of light, and rainbows, gather up into summer storms, and burst in genial showers over the thirsty ground. Mr. von Kotzebue mentions that he was surprised to observe from Concepcion, and during the clearest possible nights, much lightning in the Andes: I also very frequently saw this from Santiago and the northern road, when there was not the least appearance of any clouds, either about the cordillera or elsewhere.

The fine, wholesome and very peculiar climate of Chile, and of its parallel to the east of the Andes, might offer chances of improvement to many European constitutions, labouring under inveterate and preying disorders: but the distance is an obstacle. There often are, however, unfortunate cases, which appear of so desperate

a nature, as only to leave the alternative and time to prepare for dying, either at home, or in some foreign country: in such, when the sea voyage could be undertaken, which itself frequently suspends at least the effect of disorders expected to be fatal, Chile might produce a cure. The extraordinary purity of an air, which, however hot on a summer's day, is not relaxing, and the very regular state in which the human mechanism is kept in motion by its peculiar temperature, are advantages which must have a very powerful influence on a foreign constitution: that of the natives may be affected from slight alterations, which the former would not feel at all.

A cloth manufactory has been set up at Santiago by an ingenious Swiss, assisted by a skilful mechanic; and after considerable expence, perseverance and labour, it was to begin making coarse cloth shortly after my departure from it. Hemp yarn and cordage were also made by him, and the scene of many women and children, employed in that spot at regular day's work as in Europe, formed a very new exhibition here: several of them were occupied in selecting the best wool from the worst, and I was informed that they performed readily and well the labour assigned to them. A carding wheel seemed to exhibit very considerable workmanship and skill.

An Englishman and a Swede have set up a small brewery; the whole of which might almost be lodged in one of the vats of a London brewhouse. A single bag of hops in the store, which had been imported from Europe at a considerable cost, was supplying a few handfuls of its contents to each brewing, and the beer made here was not yet the brown stout: but it was tolerably good, and as the place had been arranged for the reception of company in a garden, the novelty of the experiment attracted many people.

Besides the straw hats made and very generally worn in Chile, there is in Santiago a manufactory of felt hats of a pretty good quality, to the improvement of which the New Shetland seal may now contribute. Woollen and cotton ponchos are chiefly fabricated in the southern districts, which cost from four to above a hundred dollars each. A considerable quantity of boots and shoes is made here. Gold and silver are wrought by several smiths into plate, maté and other pots, candlesticks,

buckles, chains and ornaments of various kinds. But, earthenwares, iron and copper mongery, many articles of haberdashery, saddles and bridles, stockings, and coarse stuffs for dress, are chiefly made in country towns, or in small farmhouses and ranchos.

Soap is manufactured in many houses for private use or for sale, but it is not of a good quality, and this must be imported. The process for making it here is the following. The ashes of the espino wood, which is most generally used for fuel, are very alkaline, and those of the stalks of kidney-beans are said to be still more so. A hundred and fifty pounds of ashes, whatever they may be, are mixed with twelve or fifteen of lime, and the whole is put into a copper, or partly copper partly earthen, vessel; sufficient water is added, and the mixture is boiled during several hours: the whole is then poured into a large funnel made with an ox hide, through the bottom of which it is strained. The lie, or alkaline solution, is mixed with a due proportion of fat, and boiled until it forms the soapy paste, which is then cast into moulds: but the alkali is so imperfectly combined with the fat, that it is both unpleasant and hurtful to the skin and to what else it is applied. I heard that two Englishmen had lately arrived in Chile, and established a soap manufactory at Quintero.

This capital is well aired, and may easily be cleansed by means of the water channels which lie in the middle of every street; these can be filled with running water from the Maypo, from works erected for this purpose; but it is seldom carried into effect. Within a few miles of it is found a fine reddish granitic rock, which is used for street flags and paving stones. The plan of the city indicates its principal buildings, and it is intended that the public walk should be continued partly around it, through the Cañada. Here is only one public place or square, whose best feature is a beautiful view of the higher Andes above the roofs of the houses. On one side of it is the palace: an unfinished cathedral forms part of the next, and the other two consist of shops and market-stalls of all descriptions. Butchers, fruiterers, and small dealers in all the produce and manufactures of Chile, fill up a considerable part of this square, and give to it the appearance of a fair. Behind these are shops, which are kept by some of the most respectable people of Santiago personally, and which are chiefly filled with foreign and valuable goods.

The following were the Prices at Santiago, of some Provisions and other Commodities, in the Year 1821.

	Dollars.	Reals.	Sterling Money at 4/6 the Dollar.
Oxen, fat ..... each	15 a 18	.....	67/6 a 81/
lean ..... –	11 a 14	.....	49/6 a 63/
fit for labour ..... –	12 a 20	.....	54/ a 90/
Cows, fat ..... –	12 a 15	.....	54/ a 67/6
lean ..... –	10 a 12	.....	45/ a 54/
Sheep, called fat, but seldom so ..... –	1½ a 2	.....	6/9 a 9/
lean ..... –	1	.....	4/6
Horses, sound, of middle size and power ..... –	15 a 20	.....	67/6 a 90/
Turkey Fowls, fat ..... –	.....	5 a 7	2/9¾ a 3/11¼
Fowls ..... – ..... –	.....	1½ a 2¼	0/10 a 1/3¼
Chickens ..... – ..... –	.....	½ a 1	0/3¼ a 0/6¾
Ducks ..... – ..... –	.....	1 a 1½	0/6¾ a 0/10
Eggs ..... from five to seven for	.....	½	0/3¼
Butter ..... the pound	.....	2 a 3	1/1½ a 1/8¼
in winter ..... –	.....	5 a 6	2/9¾ a 3/4½
Cheese, from Maule or Concepcion ..... –	.....	¾ a 1	0/5 a 0/6¾
Milk ..... the quart	.....	⅜ a ½	0/2½ a 0/3¼
Beef, fresh ..... the quintal	3 a 3¼	.....	13/6 a 14/7¼
Fat or Grease, for cooking ..... the aroba of 25 lbs.	.....	14 a 16	7/10½ a 9/0
Candles, common ..... – –	3	.....	13/6
Wheat ..... the fanega of 150 lbs.	.....	7½ a 8	4/2¾ a 4/6
Barley ..... – –	.....	5½ a 6	3/1 a 3/4½
Bread, best ..... from 2 to 2½ lbs. for	.....	½	0/3¼
Beans, Kidney, the fanega, of 150 lbs., or 12 almudas, with considerable variations according to qualities and seasons	1¾ a 4½	.....	7/10½ a 20/3
Potatoes ..... the fanega of 12 almudas	1	.....	4/6
in winter ..... –	2 a 3	.....	9/0 a 13/6
Onions ..... the hundred	.....	½ a 1	0/3¼ a 0/6¾
in winter ..... –	.....	4 a 6	2/3 a 3/4½
Melons and Water Melons, large ..... each	.....	½ a 1	0/3¼ a 0/6¾
Grapes ..... from 6 to 8 lbs. for	.....	½	0/3¼
Wine ..... the quart bottle	.....	2	1/1½
Chicha ..... –	.....	½	0/3¼
Brandy ..... –	.....	3	1/8¼
Peaches ..... 8 large, or from 16 to 24 small	.....	½	0/3¼
Salt, from Peru or the Maule, ... the fanega	.....	15	8/5¼
Hierba of Paraguay ..... the pound	.....	12 a 14	6/9 a 7/10½
Soap, made in Chile ..... –	.....	1¼	0/8½
Wood for Fuel, Espino ..... an ass's load	.....	3 a 3½	1/8¼ a 1/11½
soft kinds ..... –	.....	1½ a 2	0/10 a 1/1½
Lucern Grass ..... as much as a small horse can carry	.....	6 a 7	3/4½ a 3/11¼
Snow ..... the aroba of 25 lbs.	.....	2	1/1½
Shoes, made in Chile ..... the pair	.....	12 a 14	6/9 a 7/10½
Hides, Ox and Cow, delivered at Santiago or Valparayso, each	.....	12 a 14	6/9 a 7/10½
Chinchilla Skins, of Chile ..... the dozen	.....	20 a 22	11/3 a 12/4½
Copper, on the beach, exclusive of export duty ..... the quintal	9 a 10	.....	40/6 a 45/0

The prices at Valparayso did not essentially differ from those of the capital. For provisions they were considered low in that year, particularly for articles usually exported to Peru, melons and water melons excepted, the crop of which had been short. Meat, for daily use, is generally bought in bulk, and at the rate of from 1d. to 1½d. the pound. Cattle, and many other commodities of first necessity, could be obtained at and about Concepcion, for less than half the prices above stated.

Drawn by J. Paroissien. On Stone by G. Scharf.

Printed by Rowney & Forster.

THE MINT OF SANTIAGO.

Drawn by J. Paroissien. On Stone by C. Scharf

Printed by Rowney & Forster

THE CAÑADA. SANTIAGO.

The mint is one of the three or four stone buildings in Santiago, including the unfinished cathedral, and the finest of all: it is very spacious, and of an appearance which suits the importance attached to its contents: its cost was eight hundred thousand dollars. I found the inspection of it the more interesting, as not only the processes of assaying and coining were seen in it, but also those of reducing by fusion or amalgamation, the gold and silver ores which are sometimes brought here from neighbouring mines. Whoever chooses to open a mine in any particular spot, is only to signify his intention to the governor of the district, and a certain space of ground is measured out to him, for the purpose of working it freely and without obstruction from the owner of the land: but if six months should elapse without any labour performed in it, the miner forfeits his right. Many people in Chile employ themselves in the search of metallic veins, and possess considerable experience and skill in that pursuit. All the gold and silver extracted from mines must be sent to the mint, there to be coined, and pay the duties laid on them; often called the fifth, though not exactly so. Like many other commodities, these metals must be protected by a permit during their conveyance from the place of their reduction, else they may be seized. But for a long time past, systematic smuggling, to an amount comparatively very considerable, has taken place here.

In the Plate No. XXIV. are shown, the mint and its stables opposite; a monk; a lady going to hear mass, in a dress worn for that purpose only, and accompanied by her servant; two Englishmen in their usual morning attire here; a Chileno who has put on his most elegant satin clothes for visits; two riders whose horses exhibit their best accoutrements; and a detachment of the life guards. The Plate No. XXV. is a view of the cañada at Santiago, the wide street numbered 41 in the Plan, and now an additional public walk; of the fort, on a hill which adjoins and dominates the city; and of Tupungato rising above the cordillera of the Andes. Fruiterers are seen sheltered from the sun; and peons are resting from their labour, in the midst of water melons or their remains: loads of lucern grass and of wood are brought to market. These accurate views, and the general effect shown

in the Plate No. II. of the mountain scenery of that city to the eastward of it, will give an idea of street scenes in it, and of its fine situation and appearance; with which to be fully gratified, the want in its vicinity of more cultivation and large trees, of arrangement and taste, must be overlooked.

The arsenal is an extensive establishment, in which are founderies, forges, and workshops; but where much disorder prevailed when I saw it: fire and other arms, which must be imported at considerable cost, were lying on floors in the greatest confusion and covered with dust. Fortunately rust seldom occurs here.

As the inward duties levied on most articles of foreign manufacture, amount to about a third part of the arbitrary value set on them by the officers of the custom-house, this is an important place here. I had an opportunity of witnessing the trouble and delay which attended the mere transfer of some goods purchased in Santiago, destined for a shop in the country, in which case a small inland duty is paid. Every article, however trifling, was put down with its measure, and the whole made up a little book; the officers examined each of them separately, and fixed their value on it: this tedious operation ended, for which whole days were required, and the small duty paid, a *guia* or permit was granted, without which his goods would have been liable to seizure on the road.

Monastic establishments are numerous in Chile; they possess very large estates, but few inhabitants: in some are not more than three or four monks found to occupy their extensive residences. The nunneries are not many. The Bishopric of Santiago extends from the northern limits to the river Maule, where begins that of Concepcion. Their Bishops are suffragans to the Archbishop of Lima.

On the score of education little can yet be said. Measures have been taken for the introduction of the plan of mutual instruction, which, if well understood, allowed a free course, and conducted with the abilities and incessant attention which it requires for success, would undoubtedly effect a considerable change here. But this can nowhere be attained by money and patronage alone. Few people in the world hold a more important trust than schoolmasters of any description, and, when they

discharge it well, deserve more to rise in rank and estimation. The mechanism by which most branches of knowledge are taught, may easily be adapted to the destination of the scholar: but that management of the young human mind, which is to unfold its rational faculties, form its judgment, and ultimately establish rightly and firmly in it, sound and well understood notions of its moral and religious duties, requires no less abilities and cares, than it does a general application of them to all human creatures whatever: and he, I may perhaps be allowed to add, who rears a truly good seminary, ought to meet with a more generally felt and manifested acknowledgment of the high importance of his office, and of the great benefit which is conferred on society by a right administration of it, whether he teach the high or the low, the rich or the poor: whilst he, who is not very fully qualified for it, and for promoting the growth of reason, as much as for guiding the machinery, discipline, and board of a school, ought never to be entrusted with so great a charge. Various soils, for many centuries rejected as unfit for culture, are now bearing good crops, owing to the progress made in the right manner of breaking up and managing them: and no one, however perplexed with the questions of destiny and free will concerning himself, would probably deny, that the right culture of a tender human plant in a fit school, must as necessarily influence and improve its bearing, as it does that of wheat or vines in a well prepared soil. The duty and justice, the efficacy and gratification, of careful and general education, become indeed the more obvious, the more the subject is considered.

A spacious college contained, in 1821, about a hundred scholars, who belonged to the principal families of the country: the languages taught in it are the Latin, English and French. There is no laboratory, and I was told, that, owing to the want of instruments, the study of the mathematical, chemical and astronomical sciences was either faintly or not at all pursued. What is called the University is a large building, in which are found the Government's printing press, the only one in this country, and a public library, which, when the difficulty and expence of procuring foreign books are considered, may be called extensive, having been much enriched by the capture of a vessel bound to Lima with a large and valuable collec-

tion. The librarian is a gentleman who, to much urbanity, politeness and information, unites the desire of seeing instruction, knowledge and improvement diffuse themselves throughout the country. Valparayso and Aconcagua, the two towns where education appears least neglected, have each a school of about a hundred and twenty boys: the rudiments of Latin are taught in the former, and they are chiefly under the care of monks.

The expence of schools for boys, here and in the chief towns of Chile, is defrayed by the Government; but the number of those who can avail themselves of them is comparatively small. A custom prevails in many, of making the children learn, or rather tell, their lessons, by bawling them out as loud as their lungs will allow: the noise of the school is therefore stunning, and heard at a great distance: it proclaims afar off the seat of education, but scarcely even that of elementary knowledge. As to schools for girls, I have neither heard of nor seen any, unless the name be given to assemblages of a few female children in the houses of some poor old women. Among the higher classes, parents are but little able to bestow on their daughters any other education than what concerns some external acquirements; and they grow so hastily up to womanhood, that time, even for that, seems to them short. Some few exceptions to much waste of youth and intellects, are observed in families, where daughters are kept employed at needle work and other occupations in the morning. They appear of an apt and amiable disposition; but the means of instruction, and an impulse given for more substantial qualifications, fail them. The want of subjects for the exercise of mental faculties renders the young social intercourse frivolous; and it is apt to become tasteless and without interest, as it grows older.

The eagerness with which some of the latest European customs and fashions are adopted, is only manifested at present in insignificant objects; but the introduction of such as are more useful and interesting may follow. Tea utensils are in some houses replacing maté pots: costly British furniture and dresses are readily purchased: writing desks and work boxes are exhibited, which the schools in contemplation will render more useful; and twelve pounds are paid to a foreign tailor of Sant-

iago, who, for that moderate sum, furnishes a coat of the best English cloth and cut! The ladies of Chile are very fond of bathing and riding: many of them are good swimmers, and most good riders. They do not wear bonnets: their hair, very tastily put up with a handsome comb, usually remains bare. With the impression of the natural elegance of this custom in Chile, encountering on my return the long and huge modern bonnet, with its mazy appendages, the effect of it was at first very striking; nor was, in many instances, the whole female dress less so, owing to its straining form, its loads of ornaments, and the great contrast of their colours. These ladies have periodical institutions for much seriousness, and once or twice a year perform what is called the *exercicio*, a religious exercise, which consists in being shut up during nine days in houses destined for the purpose, where two or three hundred of the chief young women in the country will meet at the same time, and pass it in devotion; after which they wear an impression of both depth and elevation of thoughts, that are, however, soon afterwards gradually brought again to a more natural level: but they are generally fond of engaging in conversation on religious topics, and display much warmth in them and politics.

Most of the principal families of Chile are creole descendants from Spanish nobility, in several instances of very remote origin. The younger of both sexes among them are much in the habit of addressing or distinguishing each other in their conversations, by affectionate and familiar diminutives from their christian names only: a gentleman will call a lady, "Teresita," and speak of her as "la Teresita," instead of Dona Teresa. Men, on the other hand, are commonly called Don Juan, Don Diego, without their sirnames. A stranger is at first at a loss to know who is meant, until he become acquainted with the *cotteries* or small circles of friends, into which the society of those families is divided.

In winter, the tertulias of the capital are naturally much more animated than in summer; but unfortunately here, as in so many other parts of the world, politics, notwithstanding an appearance of union in what concerns the general state of independence, have caused such divisions among families, that many who formerly associated, are now, from the effect both of the repulsive ugly features of party

spirit and of fear, completely disunited. During my stay at Santiago, two foreign gentlemen, engaged in trade, who possess musical skill seldom attained by amateurs, gave some private concerts, which were attended by many of the chief families, and where some young Chileno ladies performed on the piano forte sonatas of Mozart and of other composers, and sang duets, with organs and an execution which indicated very great aptitude. Two professional singers, who had arrived from Rio de Janeiro, were invited to one of those concerts; and at the moment when the female singer entered the room, all the Chileno ladies in it, at least twenty in number, rose, and for some time stood up. On my asking one of them the cause of this, and observing, that when any gentleman came into an apartment where there was company, he might bow and scrape, right and left, till his back ached and his shoes wore out, ere he should obtain even a nod from women, I was answered that it was the custom of the country, and the way in which they were in the habit of giving a mark of attention to a stranger of their own sex.

A short time before my departure, an event took place, which deserves the more to be recorded, as it is probably the first of the kind in South America; the starting of a stage coach with four horses, from Santiago to Valparayso; of great convenience to many people, whose business occasioned frequent journies between these two places. Notwithstanding the mountains on the road, the want of trained horses, and of experience in the Chileno postilions, no serious accident had happened during several journies which had already been performed: and although some loss would be suffered by many people on that road by this undertaking, yet no mischievous opposition to it had been manifested. A North American, jointly I believe with an Englishman, had set up this public coach.

The strength and excellent qualities of the beasts of burthen and other labour in Chile, have already been noticed. The horse, which, with a tame and inactive appearance, quietly remains on the spot where his master has left it, loose and alone, to wait for him, will carry him eighty or ninety miles in one day at a gallop, usually without shoes, cleaning or care, and with but a scanty allowance of grass. A feature worthy of remark is, that here and in the pampas, its greatest power is exerted and

derived from the chest, and not, as with us, from the shoulders. The surprise caused by this fine animal, whilst mastering and pulling along a large powerful and restive bull, is increased, when this is seen effected only by a lazo fastened to a strong ring under the saddle. Extraordinary skill is displayed in tracing stray horses and mules by the marks of their footsteps: men can, in many instances, not only distinguish their own beasts, but also tell if the steps in the ground be from such as were without burthens, or loaded with goods, or with riders.

I am much inclined to believe that the horse's cantering pace, and the tinkling of the bell which hangs from the neck of that which usually leads troops of mules, have laid the foundation of that lower order of music which comes under the description of church-bell ringing, drum beating, burden striking on a harp's body, and in short, of almost any rattling noise, which is made in this country for the purpose of producing a systematic effect from sound. Wherever I have been in Chile, I have found this effect bearing the same and that character, which doubtless has been introduced here by the Spaniards, as it must have originated from an equestrian people, and as the ancient Chilenos were not such. The church bells are not rung by means of tongues and ropes, but struck on their external rims by a Friar with two pieces of metal. The sounds thus obtained cannot enter into a competition for musical skill, with the changes of the trebles or royal bob peals from a Bow church, nor are they very befitting for calling people to divine service; but for festivals and rejoicings, they produce a much more spirited and merry ring than the most famed of them: the Friars of Santiago appear very fond of this sport, and may be seen in their steeples, hammering hours away with scarcely any intermission. I had already been struck with the effect of one and the same peculiar feature in all this kind of national music, when, during my last stay at Valparayso, happening to lodge very near a street where horses were frequently cantering along, or troops of mules arriving preceded by their bell-horse, and in a house where a nurse was often amusing a child by striking a door near me with her fingers, I discovered, that sometimes I could not at all distinguish if a horse were galloping or the nurse playing, and found, after many investigations, that it was alternately the one or the other. This noise is also particularly

well adapted to the beating of military drums; and whether issuing from them, from church bells, harp players, or nurses, it rattles not unlike what is heard from a drum, when puppet and other shows of this description are exhibited in England. The zapateado dance, already described, also partakes of the same character; and the footing of it alternately imitates the strokes of a horse's gallop or of his bell. Since my return to England, I have often been strongly reminded of this kind of Chileno music, by the distant sounds of cantering horses.

Fire places with chimnies are scarcely ever seen but in the kitchens of all substantial houses. In winter, a pan full of lighted pieces of charred acacia is usually brought into the sitting room; but, whether owing to constitutional inheritance or to any other cause, the thickness of skin and hardness of fibres, noticed in the aborigines of America, appear also in some degree to belong to the present races of Chilenos, and, among other various effects, to render them less susceptible of cold than might be expected.

With the exception of the shops and stalls in the public square, little business is observed in Santiago, which, on the whole, is a very quiet capital. It is sufficiently supplied with fresh provisions from the estates near it. Beasts may not be slaughtered in the town, and the meat is publicly inspected before it is offered for sale. Very good fish may at times be procured in small quantity. Every stall or seat in the market place is paid for, and again, if occupied after noon. Every load pays a duty on its entering the city. Some pastry is carried about the streets by men, as is seen in Plate XXV.; but there is not much external indication of eating and drinking, and the labouring classes appear generally abstemious. I never saw the wine or spirit shops crowded or disorderly. Gaming, I heard, chiefly at cards, prevails extensively.

The medical establishment in Chile indicates the healthy climate of that country. At Santiago are only two or three really professional gentlemen, and as many apothecaries.

CHAPTER XV.

HISTORIC SKETCH.—EARTHQUAKES.—CONCLUSION.

UNDER the name of Chile, we have hitherto only understood the country subjugated by the Spaniards, from the desert of Atacama to the river Biobio; Valdivia, and the archipelago of Chiloe; and by that of Chilenos, those inhabitants which are almost wholly of Spanish origin, mixed with Indian and a very slight portion of African bloods; excluding from these denominations the yet unconquered Araucanos, and some other independent tribes with their lands, situated both to the southward of the above mentioned river, and to the north of its sources in or below the Andes. Before the Spanish conquest, all this portion of South America was inhabited by fifteen tribes, under chiefs called *Toquis*, and *Ulmens* or *Guilmens*. These tribes were the Copiapinos, Coquimbanos, Quillotanos, Mapochinos, Promaucanos, Cures, Cauques or Cauquenes, Pencones, Araucanos, Chilotes or inhabitants of Chiloe, the Cuncos and Guilliches, with the Puelches, the Pehuenches, and the Chiquillanos: the three latter, settled or roving upon and about the southern Andes. The Puelches have sometimes been called Patagonians, and are among those Indians who frequently extend their predatory incursions as far as the vicinity of Buenos-ayres. The whole country to the west of the cordillera was called Chilimapu, or the land of Chile: both the river Aconcagua and the Indian town on the site of Santiago were named Chile; and even now, a countryman will often say "I am going to Chile," meaning the capital. The Spaniards had generally added the names of saints to those of towns and cities, originally Indian settlements; a circumstance which, as some of the former have been retained, others dropped, occasions a confusion, which is increased by the different pronunciation of some of their letters from ours, particularly of the G, which is sounded

very like our H. I have introduced the spelling of *Chile* which is adopted in that country, and have endeavoured to follow the same rule in regard to all proper names.

The ancient inhabitants were of middle stature and well made; but among the tribes of the Andes were men of much greater size and strength. The complexion of all was of a light brown colour. With them the custom of altering the natural shape of the body did not prevail. Their fine language, called Chilidugu, still now used in Arauco and other independent parts, has been made known by the missionaries, and was found to possess a sufficient abundance of words, modifications of expression, and artificial refinement, to infer from it, that if the ancient Chilenos themselves were not in a high state of civilization, their ancestors, wherever they dwelt, must have been so; and that it must have originally belonged to a people of well cultivated intellects, and of a polished social intercourse; offering as much perfection as most tongues known, and differing, so far as has yet been investigated, from all others in the world. When we observe how much the various combinations of its short roots must render such a language clear and impressive, and how fully its numberless inflections can satisfy any range of ideas for expression and eloquence, or any modulation of voice for speech, it becomes very remarkable, that such a sign of refinement should remain, and that so many others which must have accompanied it, should have disappeared.

No where have any vestiges been found of ancient Chileno monuments, temples, fortifications, or of any buildings more substantial than the present slightly constructed square dwellings of the Araucanos, who always evinced a decided opposition to the formation of towns. Next to their language itself, to their great care to preserve it pure, and free from foreign idioms, to their aim at and regard for eloquence, the other features of a polished origin which they exhibited, were a few of their politic and civil institutions, with highly social qualities. Some of the *tambos* or shelters, on each side that part of the cordillera which we crossed, the baths and roads called the Inca's, were of Peruvian origin. The quippus, or string with coloured knots, by

which particular events were recorded in Peru, was used in Arauco, and there called *pron*. They had several words for expressing the art of painting, but none for that of writing, which was unknown to them. They extracted gold, silver, copper and other metals; and had a name for iron, though it does not appear to have been in use among them. That a small and in many instances very interesting people, whose deeds and success for the preservation of their lands and independence, appear comparatively inferior to none of the other nations of the world, and superior to most, should be gradually sinking, chiefly under the effect of European attacks, diseases and gifts, cannot be viewed without deep regret.

The most inhabited and renowned parts of Chile were those lying to the south of the river Maule, particularly Arauco, which is described as the finest portion of it, and which best suited a people not well skilled in agriculture. The following account of the Araucanos may, in most features, be extended to all Chile before the Spanish invasion, as it does not appear that the Peruvians had introduced any change in the language or government of what they occupied of it. Their country is divided into four provinces, over each of which is a chief called *Toqui*, who has under him an *Apoulmen* or archulmen; next to whom are the Ulmens and Subulmens, who have the superintendence of smaller districts. All these distinctions and charges are hereditary by primogeniture. The government is therefore an aristocratic tetrarchy. When a war breaks out, a great council invests the supreme command in a Toqui, Ulmen, or other person of still inferior rank, if of superior bravery and skill, who then becomes a war Toqui and Dictator over all other chiefs, having under him a Vice-toqui, usually a Puelch Indian: they then secretly send to their allies a bundle of arrows tied with a red string, a sign for assistance; and if hostilities have begun, they join to it a finger from some dead enemy. Their military dispositions, commands, discipline and tactics, were found somewhat similar to those of Europe; and, besides the most determined bravery and persevering spirit, they exhibited considerable skill. Since the introduction of horses into South America they have had bodies of cavalry, and have now substituted pikes and swords, for bows and slings. Their long and

sanguinary conflicts with the Spaniards were almost wholly carried on with their Indian implements of war, against the artillery, musketry and steel of the latter.

In time of war, the Araucanos, who are all required to serve, and to provide their own arms and provisions, readily subject themselves to a very strict military discipline and subordination. When at peace, they are loosely governed, by institutions very like those which were introduced from the east into Europe by the feudal system. The Ulmens are the acknowledged judges of their vassals, who, however, are not bound to any service or contribution to their lords. When a public measure is in agitation, the nobility of Arauco holds an assembly, called *Butacoyog* or *Aucacoyog*, the great council, in a convenient plain, with abundance of chicha, without which nothing of importance is done here. Some one lays the matter before the whole body, in a well digested and delivered speech; and, if carried by a plurality of votes, the resolution is published by beat of drums: three days are then allowed for a general consideration of it, and if no weighty inconvenience from it be suggested, it is infallibly carried into execution. When the Araucanos make peace, the same ceremony takes place as was practised by the Israelites under Moses; they dip the branch of a tree, the *boighe* or wild cinnamon, in the blood of a sheep, and present it to the foreign chief, as a symbol of peace and amity.

The Araucanos believe in the immortality of the soul, and in a Supreme Being whom they call *Pillan*, the Lord over a good and an evil spirit and many inferior divinities; a celestial government being by them supposed to exist similar to their own. Their burials are solemn ceremonies; relations and others accompany the corpse; with it are placed arms, provisions and chicha, to enable the dead to effect their journey into another world; and they mourn for them in black clothes. They have no temples, and only worship their gods, or sacrifice to them, on urgent occasions. They have a tradition of a general flood. Christianity has made little or no progress among them. Their solar year is divided into seasons, months, days and hours, beginning from the southern solstice. As with the Egyptians and Persians, their months are of thirty days, with the addition of five to complete

the year: their seasons are the same as with us; and, like some nations of eastern Asia, they only make twelve hours of our twenty four, six for the day and six for the night, imperfectly regulated by the position of the sun and stars. They have some of our own notions concerning fixed stars and planets, and call them countries: eclipses are with them a natural effect, but from an unknown cause. Their language is well fitted for the study of the exact sciences, towards which however, practice did not indicate much progress.

The laws of the Araucanos allow poligamy to such as have property sufficient to purchase and maintain several wives; but the first of them remains at the head of the others, and regulates all domestic business and labours, which, in Arauco, very heavily fall on this sex. Among other duties, each of the wives must have her own fire, and furnish a dish to the table of her husband, as also ponchos and other articles of dress. The bargain being made for a maid with her parents, she affects to be unwilling; the man watches her, lays hold of her, fastens her on his horse, and carries her off to his house or hut, where large entertainments are then given. The Araucanos are very cleanly in their persons and habitations: both sexes dress their hair frequently, wash it with quillai soap, and are fond of bathing in all seasons. A child immediately after his birth, and his mother, are led to the next river and there washed: the child is very loosely and slightly clad: his education, if a male, principally consists in giving to his body a good shape, a robust constitution; in teaching him the management of a horse and of arms, and to speak well and eloquently.

These people were found to have cultivated rhetoric, poetry and medicine, with many classes of physicians, some of whom were conjurers: they had made very little progress either in music or in painting. The rights of property are with them hereditary and well defined; but if the eldest son of a chief be not able to express himself with correctness and eloquence, he loses both his paternal and political inheritances, which become the property of the nearest akin who happens to be a good speaker. So jealous were they of preserving their language pure, that they constantly annoyed the missionaries among them, by interrupting and correcting them during

their religious exhortations, and forcing them not only to drop every foreign idiom, but even their own names. Although many of them were able to speak the Spanish language well, they would never use it in their political conferences with the invaders. Their public discourses are delivered with method and clearness: their poetry and songs have been rather supposed than known to be similar to Celtic poetry; for on this interesting subject, very little light has been thrown. To an excessive pride, and to a high opinion of themselves, which they often express, and which reminds us of some Indian tribes of North America, they unite very great courtesy, love, charity and hospitality towards each other and foreigners, although the latter be not held by them in estimation. All the needy are well clad and supported by the community. They unite their right hand in their salutations, and have a variety of expressions by which to suit a scale of many degrees of love and friendship. They class themselves by proper denominations, as the family of rivers or light, of the sun or moon, and are individually distinguished by the use of adjectives instead of christian names, such as the bright moon, the dark river.

The Araucanos were also found much engaged in agriculture: many of their implements were made of copper: they tilled the land by means of a pointed hoe, which they impelled forwards with the chest. It has been stated, but on uncertain authority, that they used a plough, drawn by two chilihueques or sheep, the share or point of which was directed by a rope tied to its extremity: it is probable that they may have in this manner rendered the operation of the hoe more easy and effectual. Their works for irrigation were considerable, and they knew the use of manure. They cultivated maize, a species of rye and of barley, kidney beans, potatoes, sorrel, gourds and other productions, which they cooked in various ways, and seasoned with red pepper, salt, and with oil from the plant madi: they had hogs and tame birds, but lived chiefly on vegetable food. When setting out on a campaign, each carried some of the best flour, previously roasted, for his subsistence; they ground their corn by the process which I once saw in a cottage, and have described; and made several fermented drinks or chichas, which they preserved in earthen vessels.

The wool of their sheep was spun, and woven into stuffs at looms of ingenious construction; they made sewing and netting threads from particular plants, and their dresses were of becoming and tasty shapes, died with plants or metallic earths. The women of Arauco, who are handsome, wear a dark blue tunic without sleeves, which covers the shoulders, is fastened in front of them with silver broaches, tied round the waist by a girdle, and reaches down to the feet; over this they put on a small shawl, which buckles up before; they carry many silver rings on their fingers, and ornaments over the head. The dress for the men consists of a poncho put over other garments, and of worsted girdles round the head and waist. The Toqui carries a battle axe; the Apoulmen a silver-headed staff encircled by a ring; and the Ulmen a staff with a silver head only. They now have great abundance of cattle, and barter some of their country's productions for European manufactures, a trade in which they have always been highly praised for their honesty.

The strong and interesting features which mark the ancient civilization of the Araucanos, are accompanied by others, which may tend to strengthen the supposition, that their origin is connected with our own continent: among these are some of the most ingenious games and best sports. The game of chess, called by them *comican*, was found played in Arauco, and known there from time immemorial: as was also the *quechu*, very similar to backgammon, or *trictrac*, for which they used a triangular piece of bone marked with dots, instead of dice: and so likewise was the *pelican*, the most celebrated of their gymnastic sports, and one of the oldest ball games in Europe, the *orpasto* or *spheromachia* of the Greeks, the *paganica* of the Romans, the *goff* or bandy-ball of England, the *chueca* of Spain, the *jeu de croce* of France, and the *calcio* of Tuscany, for which is used a stick with a curved end, which was found of the same shape in Arauco. In England, some holes are made here and there in the ground, within an optional distance which sometimes extends over three miles; and either two single players or two sets of them, endeavour to hit the ball from one to the other, and to drive it into the holes. In Arauco, the players, thirty in number with bandies, are divided into two parties and files, each player facing an

antagonist. The eighth man of each file begins; the wooden ball, called *pali*, is struck out of a hole in the ground, and gradually hit backward and forward by all, until one of the parties get it into his own limits, which are marked by branches of trees, half a mile distant from those of his adversaries. This game has laws, which are rigidly enforced by judges; causes challenges and regular matches between different provinces; bets, and great bacchanalian feasts. The Spaniards endeavoured as much as possible to suppress it in the conquered provinces, as being dangerous to their domination. Drinking chicha to excess, speeches of most extraordinary prolixity and bombastic eloquence, and dances in which the two sexes seldom mix, are the characteristic features of Araucano festivals. Frezier states that he was present at an Indian entertainment, where he could not discover even a smile on any countenance. Perhaps their chicha had not, like our wines, the power of relaxing the muscles.

The earliest records of the history of Chile, which only date from the middle of the fifteenth century, are due to the Peruvians. The Inca of Peru Yupanqui, in about the year 1450, came to Atacama, with an army which he from thence sent to Chile, under a prince of his family, who, more by persuasion than bloodshed, subjugated the Copiapinos, Coquimbanos, Quillotanos and Mapochinos; but who, having penetrated as far south as the country which lies between the rivers Maule and Rapel, was there checked and entirely defeated by the Promaucanos and their allies: an event after which the Peruvians gave up all farther attempts at conquests in that direction, and those rivers became the limits between the Incas and the unsubdued tribes. The communications with Peru were chiefly held by the Andes, and the Peruvians drew considerable supplies from the settlements of Aconcagua, Peildagua, Rancagua and Colchagua.

In the year 1535, the Spanish chief Almagro left Cusco for the conquest of Chile, with five hundred and seventy Spaniards, and fifteen thousand Peruvians under Paullu, brother to the Inca Manco who had succeeded the unfortunate Atahualpa. They took the road of the Andes; and such was the severity of the climate and snow storms, that a hundred and fifty of the former, and ten thousand of the latter, perished

during the journey. Almagro, pushing forward with a few horsemen, reached the valley of Copiapo just in time to send some food to the survivors, and to save them from starving. The Copiapinos, at the sight of the Peruvians, who had become their countrymen, received all as friends; but Almagro, who had not come for the sake of their friendship, got from them a considerable quantity of gold, which he distributed among his Spanish followers; and having received reinforcements from Peru, he proceeded to the southward. Two of his soldiers, who had reached Guasco and plundered some of its inhabitants, were put to death by them; an act for which Almagro caused twenty eight of the principal people of that settlement to be burnt alive at Coquimbo. Again reinforced from Peru, he continued an easy and successful course, until he arrived at the fatal spot, where the Peruvians had, in the former century, been arrested and defeated. There, the Promaucanos and other Chilenos, at first astonished at the sight of horses and at the formidable appearance of the Spanish warriors, made, notwithstanding, so obstinate and murderous a resistance, that Almagro abandoned all Chile, went back to Peru across the desert of Atacama, and over the Andes to Cusco; an immense distance: he took that Indian capital by surprise, but was afterwards vanquished by the brother of Pizarro, and beheaded.

In 1540, a second expedition under the command of Valdivia, consisting of two hundred Spaniards, many auxiliaries, and some monks, again came from Peru to Chile by the Andes, but in a more favourable season; and after some ineffectual resistance from the northern Chilenos, who had by this time shaken off the dominion of the Peruvians, Valdivia overran the provinces of Copiapo, Coquimbo, Quillota, and Melipilla, and arrived in that of Mapocho, where, in 1541, he lay the foundation of the city of Santiago and its fort, in which he maintained himself, though exposed during six years to very severe hardships, by the incessant attacks of the inhabitants: and hearing from the Peruvians, that much gold existed in the valley of Quillota, he sent there a detachment, which returned loaded with such a quantity of it, that he easily pacified his discontented followers, and sent some of them back

to Peru, with gold stirrups, spurs and bridles, for the purpose of tempting many to come to him: but they and their escort, with the exception of two, were destroyed by the Copiapinos. The two prisoners, Miranda and Monroy, after having been treated with humanity by the Indian chief, and requested to teach his son the management of a horse, murdered him during a ride, and made their escape across the desert of Atacama to Cusco.

Pizarro had died; and Castro, his successor, dispatched Monroy back to Chile, with considerable reinforcements by sea and land, which safely reached de Valdivia, who sent the naval expedition to the southward, for the purpose of surveying the coast, and pressed for more reinforcements from Peru, as the Indians were growing bolder. The Quillotanos had, by a successful stratagem, destroyed a considerable body of Spaniards stationed at their mines. Having brought to the Spanish commander a large vessel full of gold, they informed him that they had obtained it from a newly discovered mine; he hastened to the spot pointed out, but was, with all his men, suddenly attacked and slain.

New supplies of troops having arrived from Peru, Valdivia, in 1544, founded the town of Coquimbo or Serena, and having been able to form an alliance with the unconquered Promaucanos, he proceeded as far as the river Itata; but there met with such resistance and defeats, as induced him to go back to Santiago, and from thence to Peru, with a considerable booty, having left de Villagran to govern in his absence, during which the Copiapinos and Coquimbanos destroyed all the Spaniards in their provinces, and rased Coquimbo, which was rebuilt in 1549, on a more convenient spot.

Valdivia returned from Peru with another army. Powerfully assisted by the Promaucanos, he proceeded to the southward, and, in 1550, founded the city of Concepcion, in the bay of Penco, six miles wide, protected by the fine island of Quinquirina. But the Pencones, who had been forced to give way, claimed the assistance of the Araucanos. These promptly afforded it: and now began one of the longest, most obstinate and comparatively sanguinary wars known; a contest between the best

European soldiers of that time, under the most distinguished and experienced leaders, well provided with artillery, musketry, steel weapons, cuirasses and horses, and a small Indian people, scattered over their lands, armed only with clubs, bows and slings, whose numbers at any time in the field, never appear to have been greater than that of their enemies and their allies, from four to five thousand men, and often were very much less. But they were fighting for a country to which they were attached: ties of mutual affection held them together: they were active, brave, robust and free. With such qualities the smallest nation becomes strong when unjustly attacked, of which no better and more glorious instance than this was ever shown, and of what can be achieved under their influence.

A very remarkable feature of this rising contest is, that whilst in all other parts of the world where Europeans were at this time making conquests, and with a handful of men, were driving innumerable East and West Indian armies, like flocks of sheep before them, by terrifying and destructive engines or skilful tactics, the Araucanos are the only people, who appear not to have been in the least appalled at the new sight and effect of artillery, musketry, steel coats, and horses. They at once adopted the only means by which they could make up for this inferiority, that of regularly filling again their ranks as they were thinned or mowed down, and of endeavouring to come up with their enemy, to fight him at close quarters. If their supposition, when they first saw African negroes, that gunpowder was extracted from them, did not evince much knowledge, the minds which could coolly and undismayed withstand the dreadful novelty of its effects, must have been truly strong.

The Araucanos advanced to the assistance of their allies, and fought against the Spaniards with great intrepidity, but could not prevent the city of Concepcion from rising, nor Valdivia from founding another, Imperial, on the river Cauten, intended to be one of the first rank, and described as the best situated in all Chile. He granted large tracts of land to his followers, with their inhabitants, whose numbers have however undoubtedly been much exaggerated; for we find the men of Arauco

and their allies, all soldiers, obliged by their laws and most willing to fight, yet never able to bring above a few thousands against the Spaniards; and the latter, going far into the interior with sixty men only, and building Villarica, on a spot very productive of gold. Valdivia continued his southerly progress, and by the interference of Recloma, a woman who prevailed on her warlike countrymen the Cuncos, allied to the Araucanos, to allow a passage through their lands, he was able to lay the foundation of Valdivia, a strong fortress, with a deep, spacious and well sheltered harbour, in a spot where gold was abundant; and having returned from this expedition, he built the town of Angol near that of Arauco, and sent a party over the Andes for the conquest of Cuyo and Tucuman.

But whilst this was passing, the Araucanos, and the renowned Caupolican whom they had elected Toqui, were not inactive; and after many obstinate struggles, in which the most desperate intrepidity compensated for the disadvantages under which they fought, the two armies at last engaged in a decisive battle: the Spaniards were already victorious; the Araucanos were at all points giving way, when Lautaro, a youth of Arauco, prisoner and page to Valdivia, went over to his countrymen; encouraged and rallied them, turned them round again to face the pursuing Spanish army, and at last so completely defeated it, that only a few men escaped. Valdivia, the greatest of the Spanish conquerors in this part of South America, was taken prisoner, and slain by an old irritated Ulmen, against the wishes of the army and the entreaties of Lautaro. The towns of Valdivia and Imperial were besieged, and all the others in or near Arauco; Puren, Angol, Villarica, Arauco and Concepcion, were destroyed by the Araucanos. These events took place in 1553 and 1554, at which time the small pox was first introduced into Arauco, and, it is related, swept immediately off one of its provinces twelve thousand inhabitants, sparing only one hundred: a calamity at which the Indians were much dismayed, thinking that it arose from seeds sown in their lands by the Spaniards.

In the year 1555, Villagran, having driven the Araucanos from the sieges of Imperial and Valdivia, again built Concepcion with its fort, and settled there eighty

five families: but the young Araucano chief, Lautaro, who was acting with Caupolican, and full of ardent enterprise, again took and destroyed that city, from which the inhabitants escaped by sea: he next, with six hundred men, and the bold design of expelling the Spaniards from all Chile, crossed the Biobio, penetrated to a short distance of Santiago, to the great consternation of its inhabitants, but there met with death; and his little army, refusing quarter, was entirely destroyed.

Garcia de Mendoza, with considerable reinforcements of infantry, cavalry and artillery from Peru, landed in the bay of Concepcion, in spite of the resistance made by the Pencones and Araucanos. The united Indians displayed the greatest energy, and fought with the most persevering valour; but in vain: Mendoza for the third time set up Concepcion, founded the towns of Cañete and Osorno, the latter famed for its gold; marched farther to the southward, discovered the archipelago of Chiloe, with numerous canoes rowing and sailing to and from its eighty two islands, and passed on his return through the territory of the Guilliches, which is described as flat and very fruitful.

The Toqui Caupolican, who had vainly striven to check the progress of the Spaniards, and who had lost several battles in which nearly all the leaders of the Araucanos had perished, was discovered in his place of refuge: and it is said, that when his wife saw that he allowed his enemies to take him alive, she threw at his face the child she was holding, observing that she did not wish to retain the gift of a coward. This Indian chief, who had displayed such praiseworthy perseverance and skill, was barbarously impaled, and afterwards shot with arrows, after having indignantly complained, that a man of his rank should be put to death thus ignominiously, not by a sword, and by other hands than those of negroes. But he was baptized before his impalement! The greatest cruelties had been committed by the invaders since the arrival of Mendoza, and the Araucanos had become so exasperated, that both sexes resolved to unite, and to carry on a war of extermination against them; a circumstance which gave rise to the Amazons of Chile.

All the efforts, however, of this proud and intrepid people were failing: they

had for a long time continued to lose their men, their best leaders, and their ground. De Mendoza, having rebuilt the towns of Arauco, Angol, and Villarica, charged de Castillo, in 1560, to go and accomplish the conquest of Cuyo, where those of Mendoza and San Juan were then founded. The Araucanos were still fighting wherever they could, advancing and retreating, besieging or destroying some of the Spanish settlements, but generally worsted in the end, with much loss. Quiroga, who had succeeded in the government of Chile, rebuilt Cañete which had been rased, landed in Chiloe, and, in 1566, founded Castro in that island, whose inhabitants, stated to have amounted to seventy thousand, were found with the same language and institutions as those of Chile, but of a mild and timid disposition. Among the arts cultivated by them, was that of skilfully carving wood for furniture and other purposes, and manufacturing many fine stuffs with sheep's wool and bird's feathers, artfully mixed. The women of Chiloe make beautiful ponchos of this description, woven, not at looms, but by manual labour only, and died with fast colours. The climate of this archipelago is very moist and rainy. The inhabitants do not till the land; sheep are penned in their fields, so as to move and manure the ground equally, after which operation they sow and harrow it.

In 1567 was established in Chile the Court of the Royal Audience, a supreme tribunal, composed of four judges with a fiscal; and a chief was sent from Spain as President to it, Governor and Captain General of Chile. The Araucanos were much reduced in numbers, but not subdued. Such had been the havoc made of them, that, unable to withstand the power of the Spaniards, they were under the necessity of abandoning their dwellings, and of retiring to the almost inaccessible marshes of Lumaco, where they constructed high habitations above the swampy ground, and which they soon again left, with a small army which they had collected and organized. Their women were often in the ranks; destroying rather than surrendering themselves. But the invaders continued to overrun and lay waste a considerable part of Arauco, and to carry many of its inhabitants away into slavery. A great number of Toquis had successively perished, one of whom by single combat, a

mode of deciding the fate of battles often adopted between them and the Spanish commanders in chief, and which shows the high estimation in which the Araucanos must have been held by their enemies. They were, notwithstanding, treated with the most atrocious cruelty, in the hope of intimidating them into complete submission; an expedient which did not succeed; and they persevered in the resolution to carry on this deadly contest, and rather to perish to a man than submit. An earthquake happened in 1570, of such violence as to cause a short suspension of hostilities, and again to destroy the unfortunate town of Concepcion.

After twenty years more of warfare and mutual destruction, a woman of Arauco, named Janequeo, in 1590, induced the Puelch Indians powerfully to assist her in avenging her country's wrongs and the death of her husband. For a year she carried fire and desolation into many Spanish settlements; but defeat oftener than victory still attended the efforts of the Araucanos, until 1594, when the famous Paillamachu was named Toqui, though already an old man.

Martin de Loyola, nephew to the founder of the order of Jesuits, who had married in Peru the only daughter and heiress of the last and nominal Inca, Sayri Tupac, having arrived from thence with reinforcements, and sent an expedition to the east of the Andes, which, in 1597, founded the town of San Luis, set off for Concepcion with the most sanguine hopes of finally subjugating the Araucanos, and of obliterating their name which signifies freemen. But their Toqui, who hitherto had only been occupied in training his army once more sheltered in the marshes of Lumaco, and in keeping up communications with the allied tribes, meeting with a favourable opportunity for striking the blow which he had been meditating, fell on Loyola by surprise, and slew him. The signal was then given: fires were lighted on the mountains: all Arauco with their allies, including the Guilliches and Cuncos, rose, bore down on the invaders from all sides, burnt or besieged their towns and dwellings, and caused so much consternation at Santiago, that they were all on the point of abandoning Chile, and retiring to Peru. The Toqui Paillamachu and his army, swimming across the large river Valdivia, took the strong town of that name,

and made a very considerable booty in it. In the course of a few years, all the Spanish settlements, from the archipelago of Chiloe to Chillan, were either partly or wholly destroyed. The great number of Spanish prisoners led into Arauco, several of which families of high rank, were distributed among the Araucanos, treated with comparative humanity, and allowed to intermarry with them: many were afterwards exchanged or permitted to return home. After these successes the Toqui, in 1603, ended his days. The names of Caupolican, Lautaro and Paillamachu, are held in veneration in Arauco: they still live, but they live in a small, remote and depopulated spot of South America, without annals or pompous monuments.

In the year 1586 the English had made a landing at Quintero, and an unsuccessful attempt to establish themselves in Chile; and in 1600, the Dutch landed near Arauco; but the inhabitants, mistrusting and disliking all foreign connections, declined the alliance proffered, and forced them to leave their coast. Sixty years of most destructive hostilities had exhausted the strength and hopes of Spain in Chile to such a degree, that the Jesuit Valdivia was sent back to it from Madrid in 1612, with instructions for the conclusion of a peace with the Araucanos. The attempt was made; but after many conferences between the Spanish and Araucano chiefs, some offence was given to the latter, in consequence of which three missionaries were put to death, and all negotiations ended.

The war was resumed, and continued to rage furiously under the Toquis Lientur and Putapichion, who with their troops displayed extraordinary activity and bravery: the Spanish settlements, as far as Chillan, were again several times plundered of cattle and inhabitants, and once was renewed by the Araucanos their ancient custom of a great war-feast, of which the chief and worst feature was the sacrifice of a prisoner. The death of the latter Toqui, in 1632, at the moment when he had nearly gained a most signal victory, turned the day against the Araucanos, who were put to flight after great slaughter on both sides. The Spaniards continued from time to time to receive reinforcements from Peru, and both parties remained actively engaged in that contest of extermination, on which the Araucanos had resolved. In 1641, how-

ever, the Spanish commander, the Marquis de Baydes, and the Toqui Lincopichion, being mutually inclined to peace, it was at last concluded, after nearly a century of almost uninterrupted warfare. The prisoners were exchanged, and missionaries went into Arauco.

The Dutch, then in possession of some parts of Brazil, landed a second time here without success. In 1643 they made a third attempt, took possession of the deserted town of Valdivia, and built some forts near it; but, always failing in procuring the alliance of the Araucanos and Cuncos, they finally abandoned this coast. Calamities of some kind continued to visit these unfortunate countries; a violent earthquake, in 1647, overthrew part of the city of Santiago with many other towns of Chile, and in 1655, the war between the Spaniards and the Araucanos again broke out. The latter, under Clentaru, destroyed several forts: Chilian was burnt, and the country laid waste during ten years, after which peace was restored. In the beginning of the eighteenth century the Chilotes rose against the Spaniards, but soon again returned to obedience: and from 1707 to 1717, the European war of succession opened the trade of the coast of Chile to the French, whose ships filled its harbours.

The Araucanos, meanwhile, had gradually grown discontented with the peace, owing to the introduction which it facilitated of many missionaries and other Spaniards into their lands, and the consequent thirst and search after gold and influence. They resolved to break it, and chose Vilumilla for their Toqui, who conceived the vast design of uniting all the Chilenos, both of Indian and mixed origins, in the attempt to give a sudden and decisive blow to the Spanish power. He secretly sent arrows and the fingers of some destroyed enemies, to all parts of Chile; and in 1723, on the 9th of March, fires were suddenly seen blazing on the mountains of Copiapo, Coquimbo, Quillota, Rancagua, Maule, and Itata. But this bold scheme failed: the Araucanos could only effect the destruction of some of the towns which had so often shared that fate, and another peace was soon afterwards concluded, by which these truly valiant people obtained the concessions which they required, for the better security of an independence, the preservation of which had cost them so much blood.

The Spaniards, on the other hand, availed themselves of it, to collect many of the widely scattered inhabitants of Chile, and, in 1742, to found or enlarge the towns of Copiapo, Aconcagua, Melipilla, Rancagua, San Fernando, Curico, Talca, Tutuben, and Angeles. Those of Guasco, Casa Blanca, and some others, or rather the skeletons of them, arose in 1753, two years after a most violent earthquake, by which Concepcion, and all the towns and villages between the 34th and 40th degrees of latitude, were overthrown.

But the Spaniards had again displeased the Araucanos, by manifesting too much eagerness in their wishes and attempts to induce them to change their habits, live in towns, assist the works of the missionaries and of the miners; and this at last, in 1770, kindled again the flames of war. The monks were allowed to depart in safety, and hostilities once more began. From the origin of these desperate contests, we do not find one instance of defection or weakness on the side of the Araucanos or their chiefs; all attempts to bribe, divide or intimidate them, had constantly failed. Their allies had hitherto remained faithful. At this period, however, the small tribe of the Pehuenches left them, and joined the Spaniards; but soon again returned to the Araucanos, who had defeated them, taken their leader and his sons prisoners, and put them to death; since which time they have continued in faithful alliance. This new war was carried on with no less animosity and mutual destruction than the former had produced, and with alternate successes and reverses, until the year 1773, when a very sanguinary battle took place, the only recorded result of which was another and to this day lasting peace, concluded at Santiago, by the empowered Toqui Curignancu and the Governor Gonzaga, by which the Araucanos obtained farther securities for the preservation of their independence, and stipulated that an envoy from their nation should reside at Santiago. The Spanish Chilenos have, since that time, remained excluded from the left bank of the river Biobio.

This interesting people of Arauco were, from their first discovery, found addicted to excessive drinking. With the chicha they pleasantly turned, as they expressed it, the tide of their ideas. Chiefly under the effect of this vice, the remains of

their former civilization, their physical or moral existence, their political strength and respectability, have nearly all ebbed away. Ardent spirits, and the fermented juice of the fruit of widely spreading apple trees, have found here the best prepared spot and soil for their reception and consumption. These, with the small pox and measles, are gradually completing the destruction of the Araucanos; perhaps the only ancient community in the world under the name and institutions of a nation, which, as far as our knowledge extends, has not been compelled to undergo migration or a change of masters. Their extraordinary valour and success have formed the subject of a Spanish epic poem, the Araucana, by Don Alonso de Ercilla; and to the Abbé de Molina we are indebted for an interesting history of these ancient Chilenos.

The Araucanos breed cattle, which, with some other productions, a little gold, ostrich feathers, ponchos, and a few more articles, they exchange with their Chileno neighbours for brandy, wine, Paraguay hierba, sugar, tobacco, and foreign manufactures; for which trade Concepcion is the chief mart. We find in Frezier's the relation of the trading excursion of a Spaniard to the territory of the Indians in the Andes, which Frezier himself heard from a Frenchman who went with the former. They waited on the Ulmen, and remained before him without speaking. The Ulmen broke silence and said, "Are you come?" the Spaniard answered, "I am come." "What have you brought me?"—"Wine, and other things;"—whereupon the Ulmen said, "You are welcome." He then lodged them in his own habitation, where they were also welcomed by the family, to whom they made various presents. All the inhabitants of the district were summoned by a horn trumpet, and the barters being agreed on, the Indians took the goods away, without giving any pledge for them. When the merchant wished to depart, the Ulmen had the horn again sounded, and all the cattle and other commodities which he was to take in return, were faithfully brought to him. Frezier adds, that as much civility and honesty were found among these people, as with the most polite and best governed nations.

Whilst I was at Santiago, there came an Indian deputation, I understood of Pehuenches, so called from their food, which was formerly and chiefly obtained from the

fruit of the pehuen, or pine. It consisted of some men with their wives. I expected an exhibition of some good looking caciques, with characteristic countenances and dress, endowed with those diplomatic qualifications which, with Indians, would be supposed to assist their purpose most, stout and athletic forms: but a more grotesque appearance than was made by these men I seldom saw. One of them, tall and unwieldy, with a head bloated to a prodigious size, and a neck still larger than it, wore a cocked hat, with a broad and once gold trimming round it, so bare of felt and covered with fat, as to indicate a very remote Spanish origin, and the wear of more than a single generation. Another Indian, rather better shaped, had put on some ancient European coat, also trimmed with a broad lace, and very like that of a parish beadle; but which by its holes, patches, and ragged appearance, did not seem willing to yield the step of one day's service to the hat. A third had also some odd article of foreign dress on him. All this was contrasted by some Indian under clothing, and made a show, the burlesque of which would require much art to be equalled on a stage. But these people would perhaps also say this of us, when we put on our official or stately clothes. The women looked much better, with comely faces, and the Araucano dress already described. One of them had two children with her, who lay in baskets by her side, and the whole party was mounted on small and lean horses, such as Don Quixote's rosinante is pictured. This embassy had ostensibly been sent for the exchange of protestations of peace and friendship, but really for the sake of some little presents, which the government of Chile makes to them. This tribe and the Puelches are still engaged in predatory incursions on the pampas; and we often hear of the state of anxiety and danger in which the inhabitants near Buenos-ayres are kept by them. Before my departure from Santiago news were received, that the crew of a ship from the United States, wrecked near the coast of the Cuncos, amounting to fifteen men, had been murdered on their landing from the boat in which they had saved themselves. It is therefore obvious, that no part of these Indian territories could be visited with security, without an adequate force. Under the name of Puelches are comprised several hordes, such as

the Poyas, Moluches, and others, all which speak the old Chileno language. The remains of the warlike Promaucano tribe, whose name signifies free dancers, still inhabit near the river Maule: they have always been much hated by the Araucanos, owing to their early alliance with the invaders, and the powerful assistance which they gave them in their wars.

In the Plate No. XXVI. are shown three Araucano women, one of whom is grinding maize between two stones. In the background stands a house of Arauco. These habitations are so constructed as to be portable, and easily removed from one place to another; for effecting which the inhabitants help each other. The No. XXVII. represents two Araucanos playing at pelican, or bandy-ball, and another looking on. All are dressed in the ancient costumes of Chile.

The Plate No. XXVIII. is a casucha scene, in the valley of Cuevas, below the pass of the volcano. Two guanacos are seen looking at the travellers: there appears but little difference between their forms and features and those of the lama, chilihueque and vicunia. The mountain on the left chiefly exhibits the clay slate; and that on the right belongs to the central ridge, the reddish tint of whose crumbling fragments is here very striking. I should have stated before, that I several times heard in Chile of the lassitude, and difficulty of breathing, which are felt in ascending that ridge: but we only got off our mules to rest at the top of the pass, and therefore went over it without any bodily exertions. One of our party, however, experienced very sensibly this effect: I did not, in the least degree; and only generally felt, whenever placed on a high spot in the Andes, a strong disinclination to walk; the reverse of what had occurred in other mountainous lands.

In the Plate No. XXIX. are exhibited some algarobs and acacias, with their fruit, and some red bunches about the branches which are caused by the parasite air-flower: a small plough, roughly made from a crooked tree, such as is often seen at work in Chile; and an animal, called *nutria* though it does not appear to be an otter: it is caught in very considerable numbers near the rivers of the pampas, and brought for sale to Buenos-ayres; from whence it is chiefly exported to England, where its

fur, which is very like that of the beaver, is used for the manufacture of hats. This animal is very easily domesticated, and was drawn from nature.

In 1787, Don Ambrosio O'Higgins was appointed Captain General of Chile, and afterwards Viceroy of Peru. In 1810, when, in consequence of the invasion of Spain by the French, and of the change of its dynasty, the Spanish colonies were naturally induced to render their governments more their own, a part of the inhabitants of Chile, chiefly creoles, effected a revolution. A junta, or congress, met at Santiago, and the project of a new constitution was drawn up. But the Chilenos were much divided; the royalist party and army were strong; the peace which had taken place between them and the independents was broken, and the latter, on the 2d of October, 1814, suffered a complete and decisive overthrow at Rancagua.

At this time the passage of the Andes by the portillo is entirely closed, and that by the volcano still covered with snow, and of much difficulty and danger until the month of December. Yet, not only part of the routed army, but likewise many of the most respectable and wealthy families who had embraced the cause of independence, with numbers of delicate women and children, hastily left Santiago and their estates with what property they could carry, passed the cordillera, and established themselves at Mendoza and San Juan.

We have already seen the Spanish dominion lost on the eastern side of the Andes, in the States of La Plata, from Buenos-ayres to Paraguay and Chiquito, and from Mendoza to Cuzco, chiefly owing to the efforts of Buenos-ayres alone, whose troops, however, scattered at the foot of the cordillera, very far from home, without supplies, and in countries not united for mutual safety, but, on the contrary, torn asunder by factions, were again sinking under the overwhelming numbers of the Spanish army in Peru, commanded by the Viceroy Pezuela, a division of which, under Marco, amounting to seven or eight thousand men, were in Chile; where, we have just observed, they had overpowered the independent party, and from whence they were preparing to pass over the Andes to Mendoza, whilst the

main body of royalists were to advance from Upper Peru into the plains of La Plata, and complete the overthrow of the late revolutions. The situation and cause of the patriots were almost hopeless: but Buenos-ayres made another effort. San Martin, who had served with distinction in Spain under the illustrious Duke of Wellington, collected and organized at Mendoza a small army; and after having skilfully caused the royalists to divide their force, and to send part of it to the southward, by the report that he was going to cross the Andes into Chile, above Concepcion, by the Planchon pass, he and his fearless troops, among whom were many foreign officers, overcoming the natural difficulties offered to the conveyance of artillery and army materials, advanced over the cordillera, partly by the Patos, a pass above San Juan, and partly by Uspallata, the volcano, and the val Putaendo, through which we have travelled. They did not meet with any resistance in the Andes; but, in the basin of Chacabuco, below the mountain of the same name, the two armies, between three and four thousand men on each side, the independents commanded by Generals San Martin and O'Higgins, the royalists under Governor Marco, met and engaged on the 12th of February, 1817, in a very obstinate and sanguinary battle, which the Spaniards lost, and in consequence of which Santiago, with all Chile as far as Concepcion, again became free. Don Bernardo O'Higgins was made supreme Director, and on the 12th of February, 1818, the independence of Chile was publicly proclaimed.

The Viceroy of Peru, Pezuela, hearing of this disaster, sent five thousand men to join the remains of the royal army, and this junction was effected at Talcaguano, near Concepcion, under General Osorio. The whole, above eight thousand men, marched towards Santiago. The independents, to the number of seven thousand, under San Martin and O'Higgins, left the capital to meet them. The two parties came in contact at Cancha-rayada, near Talca, and the battle was won by the royalists. Their adversaries made a hasty retreat of near two hundred and fifty miles, and were saved from destruction by the steady conduct of their right wing under General Las Heras. The independent leaders, having employed a fortnight at

Santiago in forming anew their routed army, again took the field, and with five thousand men, marched from the capital to the plain of Maypo near it, where, on the 5th of April, 1818, they engaged with six thousand Spanish troops, and after a very obstinate contest, so completely defeated them, that not a hundred royalists, it is related, escaped back again to Talcaguano.

We have seen since that time, in August, 1820, an expedition embark at Valparayso for Peru against the royal party. After some delay and resistance, Lima, and Callao, its port and fortress, were entered by the independents, and a revolution was effected. A congress had assembled at Lima; but the royal army, having retired to Upper Peru, has hitherto continued to sway its mining districts, as well as those of La Plata below it: and part of that army, lately again descending into Lower Peru, has defeated the independents, and recovered the possession of Lima; but not of Callao.

The successes of the renowned General Bolivar and army of Columbia, by which the freedom of that country has at last been very nearly completed, after one of the most obstinate and merciless civil wars known, have greatly contributed, by influence and by the assistance of troops and stores, to prevent Callao and the rest of Peru from again falling under the Spanish dominion. The number of Spaniards in it, particularly in its capital, is still considerable, and possessed of much wealth; a circumstance which, combined with the strength and late successes of the royal troops there, may tend to lengthen the contest which now desolates that country. It may be doubted if the policy of promising the future, rather than effecting the present relief and melioration of the bulk of these South American people, has been a wise step. Far the greater part of a community is apt to be much more contented by a little actually received, than by much expected to be got: this has not felt its condition improved by the late changes yet, and therefore is become somewhat less interested about them; whilst the few who *temporarily* accustom themselves to retain all, may show more reluctance to give up any part. But from the general temper of the inhabitants, internal dissentions might sooner be expected than a return to the Spanish dominion;

and in these times, the expediency of any political measure cannot, even there, be weighed by common scales. The new invasion of Spain by French armies will probably not fail to have, like the former, a farther considerable influence on the fate of all its colonies. The first laid the foundation of their independence, the last may tend to strengthen it.

Among the officers of the independent army of Chile were some Araucanos, the sons of people of high rank in their country. I made some enquiries about them, and was told, that they fought like Mars, and drank like Bacchus; two characteristic national features, which still appear strongly marked in that people.

The three great divisions of Chile are those of Coquimbo, Santiago, and Concepcion: the smaller are, Copiapo, Guasco, Coquimbo, Quillota, Aconcagua, Valparayso, Santiago, Melipilla, Rancagua, Colchagua, Maule, Chillan, Itata, Huilquilemu, Puchachay, Valdivia, and the Islands of Juan Fernandez, to all which Governors are appointed. The archipelago of Chiloe is still attached to the royalist party in Peru, and its present population is stated to be twenty two thousand souls; but Castro, its capital, only contains about a hundred and fifty persons. The government of Chile, called, since the revolution, temporary, and consisting of a senate of five members, in which nearly all powers were concentrated, with a supreme Director in whom the executive branch was vested, has very lately undergone some change, effected by a General Frieire with some thousand men, who, having landed at Valparayso from Concepcion, and marched to Santiago, have there put down that government, and created a new Senate and Directorship.

In a report which was published in the United States in 1818, and again in London in 1820, the population of Chile is stated to amount to twelve hundred thousand souls; liable, it is however added, to some unexplained inaccuracies, but supported by the private opinion of the author, that such a statement was substantially correct. As I have only rated that population at two hundred and fifty or at most three hundred thousand, such a very essential difference renders it necessary, that I should show the ground on which that estimate has been esta-

blished, besides the authority of works published previously to that report. If correct statistic information can at present be given in Chile, the last five years must have been unfavourable to the purpose of obtaining it; for, exhausted and critically situated as that country has lately been, a statesman there, might feel as much reluctance to give an account of its population, produce and public chest, as would a commander, when engaged in a struggle for existence, to make known the exact strength of his army, and nature of his means. Whatever be the resources of Chile, a country rendered by nature very strong and productive, susceptible of rapid improvement, and of being governed at a very small expence, they may be more than sufficient for its defence and prosperity, if wisely and honestly managed, and if its thinly dispersed inhabitants, avoiding all internal broils, should hold themselves ready and trained for opposing any foreign attacks with union and energy.

I have already alluded to the wrong impression which the *names* of a great number of cities and towns may cause. The population of Santiago, with its suburbs, rated at about forty thousand, is an estimate in the correctness of which both common report and appearance seem to concur: but when Concepcion and Coquimbo are represented as not much inferior to it in size, and Valparayso stated to contain about ten thousand inhabitants, this is, I have good ground for observing, to suppose them three or four times more populous than they really are. Captains de la Pérouse and von Kotzebue, who both were at Concepcion, have set down its population at ten thousand, and according to the information which I have received from several persons who had been there, it appears thus, and including its port Talcaguano, very fully rated. I have twice been at Coquimbo, and believe it unlikely that all its inhabitants, those in its vicinity included, could make up the number of eight thousand. Between three and four thousand for Valparayso and the Almendral, are an ample allowance; and now that we have either travelled over, or heard of, all the other *cities* and *towns* of Chile, if we unite the population in them and in their immediate neighbourhood, with that of the three places mentioned above and of the capital, we shall not make up the number of one hundred thousand. Where

else shall we again look for twice that amount? The road from Santiago to Concepcion leads, it is true, through many long straggling villages; but in all the space which lies to the right and left of them, settlements are small and few. On the northern roads, from the capital to Copiapo, the hamlets and detached dwellings are still less considerable or numerous, and we cannot expect to find on either side of them a population of much importance, as the few large vallies in that direction are not thickly inhabited. Valdivia is a fort with a small nearly deserted town, and with an insignificant territory, thirty miles long and twenty broad, chiefly covered with woods. Chiloe is not at present united to Chile, and all other settlements below Concepcion, have been either wholly or partly destroyed and forsaken. Ultimately, and summing up all, we may not be able to find much more than two hundred and fifty thousand souls; which might be supposed the minimum, and four hundred thousand the maximum, of the population of that country.

The long and most destructive wars waged against the Araucanos; civil contests, migrations, and foreign expeditions, have all, doubtless, contributed in a considerable degree to check that increase of inhabitants, which under more favourable circumstances and so fine a climate, might have been expected in Chile. The clergy are very active in preventing any illegitimate offspring among the poorer classes. The very early growth of women may tend to render families less numerous, and these are, particularly among the higher ranks, but seldom found large. Observing, however, one day to a lady of Santiago, how very few children were seen, either at home or abroad, in that capital, I was, somewhat vauntingly, answered, that one of her friends had born seven and twenty. In cottages no scarcity of them appears, and their mean living numbers there, might be vaguely estimated at three or four to each couple. The Chileno babes struck me as very remarkably small.

The return of the lands of Chile has hitherto been stated to be from fifty up to above a hundred for one. I have endeavoured to show that such a vague manner of rating it could not convey any useful information; and that, of wheat and barley, it really appears to be, and only in a few best cultivated spots, from twenty to

twenty five grains, perhaps in some instances thirty, for one sown; and only the half of that, if we suppose the seeds to have been, as with us, sown twice over the same ground. It cannot cause surprise, that maize should yield above a hundred fold in that country, when plants of it, in the vicinity of London, have produced a quart full of corn each!

In the report before cited, the coast of Chile is very aptly called brown, and this description may be extended not only to most of the low lands, but also to such parts of the mountains as do not exhibit the volcanic, metallic, or otherwise crude tints to which I have often alluded. The cultivated grounds of all Chile, viewed from a great height, would appear but as very small spots over an immense waste. The leaves of its thinly planted woods, small and scanty, lose their tints in that of the dark branches which bear them; and even the thin grasses of the Andine pasturages are remarkably brown. In winter only, and when the sky was quite clear, did we experience any strong dews.

We farther find in that report, that the public annual revenue is supposed to be about four millions of dollars; and I shall not presume either to oppose or support this high estimate, as I am unable to form any other than very vague conjectures on the subject.

I have already noticed the very few noxious animals with which a traveller will meet in that country. We only saw two eagles, both of which of considerable size. Game is in most parts very scarce, and all the sport of the chace which ever fell under my observation, was that of an individual after some partridges.

Courts of justice do not yet appear to be favourably mentioned in Chile, and differences are often adjusted by legal arbitrations under bonds. A few malefactors are seen kept in irons to hard labour, and I only heard of one execution during my residence in it. Very few slaves are now remaining there; and as one of the first acts of the independent governments of the Spanish colonies in South America, has been to provide for the speedy abolition of this dreadful scourge, this moral cannibalism, so long inflicted by one part of mankind on the other, there will

shortly be no more of them. Among the few pleasing objects which the work of civilization slowly brings forth, the abolition of the slave trade, and the basis of a more general education, are now shining, like refulgent stars through a mist, and already adorning the modern history of some nations: not least that of Great Britain, whose sons cannot fail to dwell with gratifying interest on the records of this eventful period. The same truly christian spirit, from which these features have emanated, will, it may be hoped, farther extend its light and influence; leave to man, whether white, brown, or black, the possession of his natural rights, and bestow on all the young, those fostering cares, which are not less of the legislator than of the parent, and which may be called the child's birthright. However imperfect the improvement and welfare of mankind may be doomed to remain, though even new evils should at every step always be found inseparable from the attempt, yet there exists more or less in every mind a godly feeling, which points it out as a duty, and renders its performance the source of the most lively and lasting enjoyments.

When on the subject of husbandry, I have omitted to notice a *milkage*, which was sometimes brought to Valparayso by a female florist, but which I was not able to procure elsewhere: it is called *nata;* and made, I understood, as follows. A quantity of milk is kept boiling in a pan, and the films on its surface, as they form, are taken off, and laid extended one over the other in a round wooden mould, about twelve inches in diameter, and one and a half in depth. When, with as much milk as may have been required for the purpose, the mould is full, the cake is left to cool: sometimes a little sugar is sprinkled in the middle of it whilst it is making; but without this addition, it is a very sweet and luscious *laitage*, which, doubtless, improves with the quality of the milk used for it. Though wholesome, it requires to be eaten with caution.

The Plate No. XXXI. represents some of the scenes exhibited in the fairs of Chile which I had an opportunity to visit. The zapateado dance is performed in front of the larger booth, and a woman is seen striking on the body of the harp a burden

to the tune which is sung and played. In the smaller, the guitar is accompanying the song. Women are sitting in those booths, and men outside of them on horseback, listening and looking on. This will also, in some degree, give an idea of the chinganas of Santiago, allowing for greater confinement, and the difference of a night scene. A crowd of men are playing at rouge et noir, and one individual is throwing at a stick, for a piece of money or of ware. Two men are attempting to unhorse each other, and a Friar is ringing the bell of his church. Endeavours have been made that this Plate, as well as the No. XVII., should offer, with the general effect of the mountain scenery in the large vallies, that of the striking contrast between the cultivated spots in them and the waste lands.

By a coincidence, not less extraordinary than calamitous, it has happened, that at the time when Chapter XI., the last of such part of this work as was published the latter end of December, 1822, was writing, and, if we allow for the difference of longitude, precisely on the same day as was printing that sheet of it, where some guanacos, which we really saw near the volcano of las cuevas, were feigned to warn our travelling party, against the great convulsions of nature to which this country is subject, one of the most awful and violent, hitherto known to have shaken Chile, was not only actually taking place, but in the very part of the Andes where this fiction was introduced; having extended its destructive course from the sea to the same spot. Had that sheet been written on the banks of Loch Tay, chance would in vain attempt to contend for the production of what must have been deemed the work of a second sight.

On the night of the 19th of November, 1822, state the accounts from Santiago, with a low heat, and an atmosphere extremely rarified, a loud and terrific noise was heard in that capital; a few seconds after which, at 10h. 50m. P. M., an earthquake began with two most violent shocks, which took up two or three minutes, and did much damage to that city, particularly to the churches and the mint. The earth continued in an oscillating motion until the 20th, when, at 3h. 8m. A. M., another but slight shock took place. Thirty four minutes afterwards, a meteor, in

the form of a large train of fire, was seen directing its course from N. E. to S. W., and many others were observed to move about the cordillera. At 5h. 24m. the consternation was renewed by another loud detonation, but the shock which accompanied it was not violent; and those which again and from time to time occurred on this and the following day, caused no farther injury to Santiago; nor does it appear that any lives have been lost there. The mint it is said must be rebuilt.

At Valparayso the effects of this calamity have been much more destructive. There the first shock took place at 10h. 45m. P. M., five minutes before that of Santiago, and in three minutes the whole town with the Almendral, seven or eight houses excepted, was overthrown. About a hundred and fifty of the inhabitants are reported to have perished. Many went on board the vessels in the bay, and the rest, consisting of some thousands, to the table lands above it, where they pitched tents, under which they still continued to live in April last, 1823. It is stated in one of the accounts, that on the day which preceded the first shocks, myriads of dead and dying fishes were seen near Valparayso and Sant Antonio, covering the waters to a considerable distance.

These shocks have been no less fatal to the towns of Quillota, Casa Blanca, Melipilla, and to the scattered dwellings in that direction, all which are reported to have been more or less completely thrown down. Aconcagua and Quintero have suffered much. Though not so violent at Concon, yet the large corn mill lately erected there, was so much shaken, as to require that it should be taken down and again set up. The river Quillota, which runs by that hamlet, rose very much after the first shocks, owing to the snow said to have been thrown off the cordillera by them: they must therefore have moved the Andes above Aconcagua with considerable violence, to cause it to slip down low enough and in sufficient quantity, to melt, and to swell the river; particularly as, at the time when this earthquake happened, it usually lies on the central ridge, and already high up it. The roar of the sea is described as having been most tremendous, and must indeed have been terrific to the inhabitants of very low vallies near it.

This great convulsion appears to have been directed from S. W. to N. E., chiefly under Valparayso and about two hundred miles north and south of it, and from thence to the cordillera above Aconcagua, Santiago and Rancagua; but generally as far as Peru to the north, and below Concepcion to the south. The latter town did not experience a very strong shock, and at Colchagua it was but slight. We observe in Humboldt's, that the violent earthquakes which have taken place in New Andalusia, between the Caribbean sea and that branch of the Andes which extends along them, have seldom, if ever, been felt across the plains, on the southern side of the chain. This likewise appears to have been the case in Chile, and we do not find that the violent concussions which have at different periods agitated that country, have had corresponding effects, or often were felt at all, below the eastern side of the Andes. The last was felt at Mendoza, but not violently.

The earthquake in Syria, which has laid Aleppo, Antioch, and other towns near them, in ruins, began in the night of the 13th of August, 1822, by a shock which, of all that have followed, proved the most violent and destructive. We observe much uniformity in the description of what has been experienced, by the inhabitants of such spots as have undergone severe visitations of this kind. After hollow rustling sounds, or loud detonations, the motion of the earth is compared to the undulations of a roughly agitated sea, and the sensation which it causes, to that felt in a small vessel tossed by it: more or less sickness is experienced, and the legs must quickly shift through a variety of steps to prevent the body from falling. The effect on the mind is naturally most awful, and in many instances described such as it is impossible to conceive. The last earthquake in Chile is reported to have given rise to some observations, that it had been owing to the residence of heretics there: we read that, in the last century, when Aleppo was destroyed by a similar event, the Turks attributed it to the presence of Christians!

The following statement places in a relative point of view, many earthquakes and violent volcanic eruptions, which have taken place in different parts of the world, from June, 1822, to August, 1823. It is probable that several more, not less remarkable, may have occurred in it within the same period.

1822.	In America.	In Asia.	In Europe.
JULY.....	.....	.....	IN PORTUGAL.—On the 10th, in the morning, two strong shocks of an earthquake took place at Lisbon and its environs. They lasted six or seven seconds, and the buildings near the sea were most affected.
AUGUST.....	.....	IN SYRIA.—On the 13th, at 9h. 30m. P. M., Aleppo, Antioch, and every town, village, and detached cottage in that Pachalic, with some in those adjoining, were, in ten or twelve seconds, entirely ruined by an earthquake, and became heaps of stones and rubbish. Twenty thousand persons were destroyed, and a like number wounded and maimed, at the lowest computation. The shock was sensibly felt at Damascus, Cyprus, and to the east of Diabekir. It was reported, but apparently on uncertain ground, to have extended to part of Arabia. IN BENGAL.—On the 16th, at about 1h. 30m. P. M., two somewhat violent shocks of an earthquake were felt at Calcutta. The houses, after a rustling noise like wind, began to move, and the oscillations became gradually stronger during twenty seconds, after which they subsided.	IN CARNIOLA.—On the 14th, a shock was felt at Laybach.
SEPTEMBER..	.....	.....	IN GREAT BRITAIN.—On the 18th, between 1h. and 2h. A. M., a strong shock was distinctly felt at Dunston, near Newcastle, accompanied by a loud noise like thunder. The inhabitants were awakened by the displacing or overthrow of their furniture.
OCTOBER....	.....	IN JAVA.—On the 8th and 12th, two most violent eruptions of the mountain Galong Goening, not known before as a volcano, took place, preceded by an explosion like that of a piece of heavy artillery, a cloud of black smoke, and a wind of such force as to blow houses and trees down. The plain of Singapama was covered with mud mixed with burning sulphur. Three thousand and eighty-five persons, a considerable quantity of cattle and produce, and many estates, were destroyed, chiefly by the burning lava.	IN ITALY.—On the 20th, at 10h. P. M., after some slight shocks of an earthquake in the neighbourhood of Mount Vesuvius, began one of the greatest eruptions known from that mountain. It became most violent on the 22d. A column of fire, apparently 2000 feet above the mouth of the crater, incessant lightning, claps of thunder, hollow detonations, large fragments of rocks thrown up and clashing with each other, and torrents of burning lava, threatening or carrying destruction to the inhabited country below the mountain, have been described as having rendered the scene of that night one of the most sublime and terrific that can be imagined. On the 16th of November following, the eruption had entirely ceased.

1822.	In America.	In Asia.	In Europe.
NOVEMBER..	IN CHILE AND PERU.—On the 19th, at 10h. 45m. P. M. at Valparayso, and 10h. 50m. at Santiago, an earthquake took place, and by two violent shocks, which lasted from two to three minutes, the towns of Valparayso, Almendral, Melipilla, Casa Blanca, and Quillota were destroyed; Santiago and Aconcagua much injured, and about two hundred lives lost, chiefly at Valparayso. The sky was clear, and the heat very great, when a rumbling and gradually increasing noise from the westward, gave warning to the shipping and inhabitants at Valparayso of some catastrophe, and just time to the latter to leave their houses, before these, the castle, and all the churches, were thrown down. The sea suddenly receded to the depth of nine feet, but immediately again returned. So rough were the oscillations, that every thing loose on ship-board was knocked about, and people on shore were obliged to lay down. The ground opened in several places, and the vapours which issued from the gaps were extremely nauseous. Heavy rains fell the next day; a very extraordinary occurrence in that month; and the shocks were not near so strong in high or rising spots as in low. This earthquake is stated to have been felt along the whole coast from below Concepcion to near Lima, a distance of about 2000 geographic miles, and from the sea to the eastern foot of the Andes.	IN SYRIA.—With the exception of now and then a few days, since the earthquake of the 13th of August, other shocks continued to take place at Aleppo, Antioch, &c. and always simultaneously in both places, of which only one, on the 18th of October, was violent. IN JAVA.—The mountain, an eruption from which a short time before did so much injury, again exploded in a most dreadful manner. The explosion was heard at Samarang, distant above 150 miles; masses of rocks, exceeding twenty feet in diameter, were thrown up a considerable way, and upwards of 6000 inhabitants were in all supposed to have perished.	IN GREAT BRITAIN.—At Hillesden, in Buckinghamshire, a slight shock of an earthquake was reported to have been felt.
DECEMBER..	IN COLUMBIA.—On the 1st, at daybreak, a violent earthquake took place at Grenada. The walls of most houses in the city were cracked, and the tiles shattered. Two or three less violent shocks occurred every day afterwards during a week, and another on the 20th, by which the summit of a mountain near the town was split. The motion of the earth was such as to render the inhabitants dizzy. IN CHILE, the shocks continued during this month, but without violence.	IN JAVA.—On the 27th, at about 9h. P. M., a violent earthquake was felt in the residency of Kadoc, and renewed eighteen times in thirty hours, with terrific oscillations. A rumbling noise in the mountain of Merapie was heard, and followed by a dreadful eruption on the 29th, which destroyed six villages and fifteen persons. IN SYRIA.—Of the many shocks which have continued to take place during this and the former months, those of the 12th, 22d, 23d, and 24th instant were so severe, as still to prevent the erection of any other buildings than huts.	IN ICELAND.—On the 25th an eruption took place from the volcano Oefelden Jökelen, by which some farms and cattle, but no lives, were lost.
1823.			
JANUARY....	.....	.....	IN SWEDEN &c.—On the 30th, two shocks felt, in Norr Telji and Alond.
FEBRUARY..	.....	IN HINDOOSTAN.—On the 9th, between 1h. and 2h. P. M., shocks were felt in the Neilgherry hills, in Nagercoil, at Madras, in Ceylon, and likewise at sea,	IN ICELAND.—An eruption took place from the Skaptan Jökelen, the volcano which did so much mischief in 1783 and 1784.

1823.	In America.	In Asia.	In Europe.
FEBRUARY..	.....	on board the Orpheus, in Lat. 1° N. Long. 80° E. strongly. Their direction appeared to be from N. W. to S. E., and they were accompanied by a loud rumbling noise. The Brahmins, or priests, made the Hindoos believe that the concussion was owing to the cow, which, as it carries the earth on one of its horns, was shifting it unto the other, an operation which took place every twelfth year, and shook it more or less, as it was more or less expertly effected.	
MARCH	IN CHILE.—Though the shocks have much subsided both in frequency and violence, yet some took place this month, sufficiently strong to cause much alarm.	IN HINDOOSTAN.—On the 2d, an earthquake was felt at Madras, and generally along the Coast of Coromandel, as also in the island of Ceylon. It extended to Travancore, where it is stated to have happened twenty minutes later than at Madras.	IN SICILY.—On the 5th, an earthquake took place at Palermo; six or eight churches were very much injured, thirty houses in ruins, and most so shaken, that nearly the whole town was propped up with beams. On the 27th, an earthquake was also felt in the small island of Favignano, where part of an ancient fortress fell in; twenty two persons perished. On the 31st, another shock took place at Messina, without doing any injury.
APRIL.....	.....	IN SYRIA.—The shocks had gradually subsided, and were at this time rare and slight.	IN GREAT BRITAIN.—On the 29th, at 6h. A. M. an earthquake took place at Swansea, in South Wales, of sufficient violence to wake the inhabitants, and to disturb their furniture.
MAY	.....	.....	IN VALACHIA.—On the 7th and 9th, three strong shocks of earthquakes were felt at Bukarest, but did no injury.
JUNE.....	IN CHILE.—The most violent and destructive northwest storm ever known, took place at Valparayso, and caused so much wreck or damage to the shipping in the bay, as to have been another public calamity. The extraordinary shocks of earthquakes had at last ceased.	IN SYRIA.—Up to the 30th, shocks still continued throughout Syria, sometimes daily, with more or less violence and damage.	IN ICELAND.—On the 26th, after a dreadful noise which began on the 23d in Myrdals Jökelen, a most violent eruption, accompanied by an earthquake, took place from the crater Kollergean, which had been quiet during sixty eight years. Torrents of water, with clouds of stones and ashes, were thrown out, some of which fell on ships lying at a distance of sixty miles from the coast. Farms and cattle, but no lives, were destroyed.
AUGUST	.....	.....	IN DALMATIA.—On the 20th, after an oppressive heat and distressing drought, a meteor passed over the city of Ragusa into the sea, and was followed by an earthquake which destroyed many houses and some lives. The shock was felt in Turkish Bosnia.
			IN RUSSIA.—On the 22d, 23d, and 27th, slight shocks were felt at Pawlouisk in Wovoresk.

Since the time of the Spanish conquest, seven very violent earthquakes have taken place in Chile; in 1570, 1647, 1657, 1730, 1751, 1818, and 1822; and with the exception of that of 1818, which overthrew the town of Copiapo, they were principally felt between the 30th and 40th degrees of South latitude, alternately destroying, either wholly or partly, the cities of Santiago and Concepcion, with many of the other settlements in that parallel; but comparatively very few lives.

It has been stated that, among the innumerable craters of volcanos in the central ridge of the Andes of Chile, fourteen are in constant eruption, and a still greater number only discharging smoke: but it may be much doubted, if near so many would now be found in a state of any action at all. There are two between the Andes and the Pacific ocean; one near the mouth of the river Rapel; the other above Villarica, in Arauco. The greatest eruption known is that of Peteroa, in 1760, which was accompanied by an explosion of such violence as to rend a mountain asunder, and to be heard throughout Chile.

The highest summits of the Andes, in Chile and to the southward of it, are, Manflos in latitude 28° 45′ S.; Tupungato in 33° 24′; Descabezado in 35°; Blanquillo in 35° 4′; Longavi in 35° 30′; Chillan in 36°; and Corcovado in 43°; they are all supposed to rise more than 20,000 feet above the level of the sea, but apparently from mere conjecture only.

LAKES.—With the exception of three salt-water marshes near the sea, in Chile, its lakes are few and very small; those of Ridaguel, Aculeu, and Taguatagua, below the Andes, and two or three more, still smaller, high in those mountains. There are two in Arauco, each of about 30 miles in circumference; that of Nahuelguapi, and that of Laquen or Villarica.

RIVERS.—Most of the rivers of Chile are so small, that it appears needless to state them. The largest is the Maule, which is navigable, but, at some distance from its mouth, for small craft only. The large rivers of Arauco are, the Biobio, Cauten, Tolten, and Valdivia; and those in the territories of the Cuncos and Guilliches, the Chaivin, Rio Bueno, and the Sinfondo.

MINES.—The mines and washings for gold extend over most parts of Chile below the Andes, but the principal spots are near Copiapo, Guasco, Coquimbo, Ligua, Petorca, Tiltil, Caen, and Talca. Silver is chiefly obtained in high parts of the Andes, and particularly above Copiapo and Guasco. The principal copper works are, on the upper road from Aconcagua to Coquimbo; in the *cerro verde* near the latter town; in the gold mounts near Guasco or in its valley, and in that of Copiapo.

DISTRICTS or PARTIDOS of Chile, with their chief Towns, and a rough Estimate of the Population of the latter. From North to South.

COPIAPO ..... *Copiapo* ..... 2000 souls.
GUASCO ..... *Guasco* ..... 2000—*Asiento*, or Santa Rosa.... 300 souls.
COQUIMBO ..... *Coquimbo*, or Serena ..... 7000—*Tongoi* ..... *Yllapel* 1700
QUILLOTA ..... *Quillota*, or San Martin de la Concha.. 2000—*Ligua* ..... a few hundreds.—*Petorca*..2200—*Casa Blanca*.. 700
ACONCAGUA..... *Aconcagua*, or San Felipe ..... 2000—*Villaneuva* 800
VALPARAYSO.... *Valparayso*, or Valparadiso ..... 2700—*Almendral*..... 800
SANTIAGO..... *Santiago de Chile*, or San Jacopo....40,000
MELIPILLA..... *Melipilla*, or San Jose de Logrono ... 1500—*San Francisco* del Monte.. a few hundreds.
RANCAGUA..... *Rancagua*, or Santa Cruz de Triana.. 2200
COLCHAGUA..... *Colchagua*, or San Fernando 1800
MAULE ..... *Talca*, or Sant Augustine..... 2000—*Curico*, or San Jose de Buenavista..1800—*Cauquenes*, a few hundreds.
ITATA ..... *Coulemu*, or Jesus..a very small settlement.
CHILLAN ..... *Chillan*, or San Bartholomeo 2000
PUCHACHAY .... *Gualqui*, or San Juan Bantista ..... —*Concepcion*, or Penco, with its port, *Talcaguano*..10,000
HUILQUILEMU..*Estancia del Rey*, or San Luis de Gouzaga, or Huilquilemu a very small settlement.
VALDIVIA..... *Valdivia* .....

ISLANDS OF CHILE.—These are, the three *Coquimbanes*, near Coquimbo, very small, and not inhabited; *Quinquirina* and *Santa Maria*, near Concepcion, each about 4 miles long, and without permanent inhabitants; *Mocha*, 60 miles in circumference, not inhabited; the archipelago of Chiloe, consisting of 32 islands, of which 35 are stated to be inhabited, and Chiloe, about 150 miles long, is the largest: lastly, the two *Juan Fernandez*, the larger of which, with a very few inhabitants, is about 42 miles in circumference.

Comparatively, the very frequent earthquakes to which Chile is subject, will appear more dreadful by their impression on the mind, than by effects very extensively destructive. The premature loss of lives by them has hitherto born no proportion to what it generally has been in other parts of the world, and to what is gained in that country over others, by its delightful climate alone. The injury which they

cause to very low dwellings is soon repaired; the timbers, which are of hard wood, may again be used, and the broken adobes be recast on the spot. They have not hitherto impeded the works of agriculture or mines, which are the most important there. They may render the erection of any complicated and expensive structure, for the purpose of manufacture or any other, of very precarious security: stores may not safely be filled with such wares as are too frail to stand the effect of strong shocks: but, judging from the past, the ground on which the main foundation to the prosperity and welfare of Chile may rest, is not likely to be disturbed by them.

The northwesters, as they are called, or the winter storms, are every year during that season the cause of great alarm and loss to the shipping in the bay of Valparayso. Shortly after the late earthquakes had subsided, in June last, 1823, a most violent gale of wind from the northwest occasioned so much destruction and damage to the ships in that bay, as to have been another public calamity. But here, the misfortune may perhaps, in some degree, be attributed to the Chilenos themselves, who, I believe, have not yet laid one stone upon another for the greater security of that important bay, and for rendering it a real harbour to the vessels frequenting it, which are not only exposed to the direct effect of that wind, but to be run foul of by such of their neighbours as may part from their cables. Even the afternoon breeze in other seasons is often dangerous; and unless some improvement take place, no great increase of shipping, particularly of coasting craft, can be expected at Valparayso. Twenty vessels are a number sufficient for much dread or mischief. Concepcion and Coquimbo are said to be good harbours.

The first attempt to navigate by steam in South America was made at Rio de Janeiro, in July, 1821; and though for a conveyance across the bay in very considerable daily request for passengers and provisions, yet the steam boat has, I understand, been laid down, owing to the extraordinary expence of wood fuel. This difficulty would be found still greater in the river Plate; and to establish a water carriage from Buenos-ayres towards the Andes in that parallel, could only be attempted by the river Tercero, which might probably be easily ascended with the

help of steam. The interesting and increasing settlements of Mendoza and San Juan must therefore look chiefly to the southward, for a cheaper and more expeditious conveyance of their productions to the Atlantic, when the river Colorado shall have been explored, and some trading settlement made on it. There is much reason to think, that its ascent would lead through most fertile and to very metallic tracts, where coals might be found, and which may not be exposed to such high winds as prevail at a greater distance from the Andes.

In observing the size, compactness, and strength of beasts destined for labour and slaughter, most of which entirely fed on grasses, but on plants whose very quick growth renders them almost constantly in bearing of seeds, either formed or forming, and particularly on cultivated lucern, an additional importance appears attached to a question, which I am not aware of having yet been, even approximately, decided: how much more profitable may be, in its ultimate results, and on a given space of land, the growth of cultivated than of natural grasses: or, placing that enquiry on a broader ground, how far, generally, but with the exception of particular spots or wants, the system of agriculture by which grasses are produced, as is termed, artificially, may be more beneficial to the inhabitants of a country, than to obtain them naturally. As the scales of comparative deductions and returns should contain, not only the respective quantities and qualities of food for man and beast thus got, with the expences of labour and manure, but also the employment of more hands, the improvement of climate, and such other generally advantageous consequences as follow the frequent breaking up of a soil, the ultimate difference of benefit obtained from those combined results, may not be evidently shown, until farther experiments and careful investigations shall have taken place. In countries whose population is fast increasing, and particularly in those whose structure is mountainous, and whose lands fit for culture are much contracted, the solution of this problem may be of very great importance.

FINIS.

Index to Plates.

A *Plan* of the *Post Road* from *Buenos-ayres* to *Santiago de Chile*—145.

No. I. *Water Spout,* seen the 5th of April, 1820, in latitude 20° S.—8.

II. *Plan* of the *City* of *Santiago,* the *Capital* of *Chile;* with a view (not offered as accurate, but only as a general appearance) of the Andes, and of a plan of the country near Santiago, at the foot of that chain of mountains, embracing a distance of forty or fifty miles along it—137.

III. *View* (taken near Buenos-ayres,) of *Cattle,* caught with the *lazo* for slaughter—147.

IV. *Cattle* houghed for slaughter.—*Ostriches* balled—147.

V. *Portezuelo,* a village in *Cordova;* with the introduction of some rocks near it, supposed to have formerly been sea breakers—150.

VI. *Desaguadero.*—A posthouse between *San Luis* and *Mendoza*—164.

VII. *Carts* conveying goods and passengers across the *pampas*—174.

VIII. *Muleteers* seen at night in the *pampas,* and *travellers* at a distance—175.

IX. *Villavicencia.*—Two small summer habitations in the mountain of *Mendoza* or *Uspallata*—205.

X. *Uspallata.*—A Mendozine hamlet and guard-house in the Andes—208.

XI. *Bridge of the Incas,* with some other features of the high valley of *Las Cuevas,* brought into view—222.

XII. *Tajamar,* or *Public Walk,* at *Santiago*—239.

XIII. *Tertulia,* or evening party, at *Santiago*—240.

XIV. *Ploughs* and *Ploughing* in *Chile*—251.

XV. *Copper Ingenio* or *Work* in *Chile,* where this metal is smelted and refined—258.

XVI. *Tertulia* and *Maté Party,* at *Guasco,* in *Chile*—266.

XVII. *Silver* and *Copper Works* in *Chile;* the first, within the wall, shows the process of grinding, amalgamating, and refining the silver ore. The last, without the wall, exhibits the open furnace which is most commonly used in Chile for smelting copper—272.

XVIII. *Travellers* arriving at night in a *hamlet* of *Chile,* consisting of *ranchos,* or the poorest Chileno cottages—278.

XIX. *Hacienda,* or Country Mansion in *Chile;* showing the slaughter yard, beef dried in the sun, corn thrashed, the shop, &c.—300.

XX. *Muleteers,* and *conveyance* of *Iron Bars* and *Timber,* in *Chile,* with a distant view of the little town of *Casa Blanca*—301.

XXI. *Costumes* of *Chile* in 1786, from De la Pérouse's, who, in that year, touched at Concepcion—310.

XXII. *Baths* of *Cauquenes;* view taken from the banks of the river Caciapoal, below the baths—311.

XXIII. *Baths* of *Cauquenes;* view taken from the square formed by the lodging houses—311.

XXIV. The *Mint* of *Santiago de Chile,* and its opposite *stables,* with a street scene—321.

XXV. *View* of and from the *Cañada* of *Santiago de Chile,* now an additional public walk; in which its fine mountain scenery, and another street scene of that capital, are shown—321.

XXVI. *Araucano Women;* one of whom is grinding maize: with a portable house of Arauco—349.

XXVII. *Araucanos* playing at *Pelican,* or *bandy-ball*—349.

XXVIII. *A Casucha Scene,* immediately below the central ridge of the Andes, with two *guanacos* in the foremost ground—349.

XXIX. *Two Water-rats of the pampas, called Nutria: a rough plough of Chile, with some algarobs and acacias in seeds*—349.

XXX. Not executed, (instead of *three,* page 311, read *two.*)

XXXI. *Fair Scenes in Chile;* in which the zapateado dance, church ringing, rouge et noir playing, &c. are shown—349.

Index to Chapters.

Chapters.

I. *AT SEA, FROM ENGLAND TO BUENOS-AYRES*—5.

II. *SOME GENERAL FEATURES OF AMERICA;* historic, geographic, geologic, and meteorologic—16 to 33.

III. *GENERAL FEATURES CONTINUED.* Its principal vegetable productions—34 to 60.

IV. *GENERAL FEATURES CONTINUED.* Its most valuable gems and metallic productions—61 to 78; with a comparative statement of the Gold and Silver annually obtained in Europe, Northern Asia, and America, in the beginning of the nineteenth century—78.

V. *GENERAL FEATURES CONTINUED.* Its most noxious and most useful animals—79 to 96.

VI. *GENERAL FEATURES CONTINUED.* Its Spanish colonies; their situation and population; with some account of its Indian inhabitants, and of the Jesuits—97 to 125; and a statement of the population of America, Europe, Africa, and Asia—106.

VII. *PROVINCES OF SOUTH AMERICA, WHICH FORMERLY COMSTITUTED THE VICEROYALTY OF BUENOS-AYRES OR LA PLATA, AND WHICH NOW FORM INDEPENDENT STATES*—126 to 144. With Itineraries of the North, Northwest, and West Post Roads from Buenos-ayres to Paraguay, Peru, and Chile—130.

VIII. *DEPARTURE FROM BUENOS-AYRES.—ARRIVAL AT PORTEZUELO.—DIGRESSING EXCURSION*—145 to 160.

IX. *DEPARTURE FROM PORTEZUELO.—ARRIVAL AT MENDOZA.—MODE OF LIVING AND OF TRAVELLING ON THE PAMPAS*—161 to 179.

X. *MENDOZA AND GOITRES*—180 to 194.

XI. *SOME OCCURRENCES DURING A SUBSEQUENT JOURNEY.—DEPARTURE FROM MENDOZA.—PASSAGE OF THE ANDES.—ARRIVAL AT SANTIAGO DE CHILE*—195 to 240.

XII. *DEPARTURE FROM SANTIAGO, AND ARRIVAL AT VALPARAYSO.—JOURNEY FROM THENCE TO COQUIMBO AND GUASCO*—241 to 272.

XIII. *RETURN FROM GUASCO TO VALPARAYSO.—AN EXCURSION FROM THENCE TO QUILLOTA, ACONCAGUA, AND THE BATHS OF COLINA*—273 to 300.

XIV. *DEPARTURE FROM VALPARAYSO.—MORE EXCURSIONS FROM SANTIAGO, AND FARTHER DESCRIPTION OF THAT CAPITAL*—301 to 328; with a statement of the prices of some provisions and other commodities, there and at Valparayso, in the year 1821—320.

XV. *HISTORIC SKETCH.—EARTHQUAKES.—CONCLUSION*—329 to 366; with a comparative statement of many earthquakes and violent volcanic eruptions which have taken place in various parts of the world, from June, 1822, to August, 1823—361.

General Index.

America, when first discovered, 16. Supposed origin of its former inhabitants, 16. Amount, and some description of them, 100, 101, 106 to 119. Southern extremities but little inhabited and known, 18, 74. Its Spanish colonies, and their present state, 60, 97 to 99, 105. Their situation, politic division, and population, 102 to 106, 352. African slaves in it, 104, 356.

Asia, its population, 106.

Africa, its population, 106.

Anahuac, Plains of, 106.

Aztlan and Aztecas, 106.

Arauco, and Araucanos, still unconquered, 17. Situation and description, 25, 309, 331. Population small, 104, 310. Origin doubtful, 107, 335. Good horsemen, 302, and orators, 330, 333. Their fine language, 330. Government, 331. Religion, 332. Military and civil institutions, 331 to 334. Agriculture, 334. Dress, 335, 349. Games, 335, 349. Drunkenness, 336, 346, 353. Extraordinary valour and patriotism, 339, 342, 346, 353. Trade, 347. Their wars with the Spaniards, 338 to 346. Lakes and rivers of, 364. Town of, 340, 342.

Apolabamba, State of, 132.

Atacama, State, desert, and Town of, 25, 27, 132, 268.

Asumpcion, Town of, 122, 130, 131.

Angol ..... " 340, 342.

Angeles..... " 346.

Almendral. " 244, 354, 364;. lately overthrown, 359.

Aconcagua, District and Town of, and its inhabitants described, 228, 289 to 291, 353, 364. Education, 324. Foundation, 346. Much injured by the late earthquake, 359.

Andes, See Mountains.

Agriculture, Requisites for it, 57. Restrictions injurious or unjust, 58, 59. Of the ancient Americans, 108, 117. Manure, where used or not, 36. Artificial irrigation, where required or not, 36. Comparative estimate of returns from it, 55 to 60; highest, probably in Great Britain, 56. Of Chile. Breaking up waste lands, 234, 250. Tillage, 251. Scottish and Chileno ploughings compared, 251. Sowing, harrowing, 251, 252. Irrigation, 36, 288, 309. Blight, 253. Late maturity, 253. Harvest time, 253, 312. Thrashing, sifting, 254. Returns of wheat and barley, 55, 252, 291, 355; of maize, 55, 355. Vineyards, 293. Quillota, 288. Aconcagua, 252, 290, 291. Colina, 291, 292. Rancagua, 309. Along the canal of Maypo, 312. Concepcion, 310. Arauco, 334. Chiloe, 342. Remarks on natural and artificial grasses, 366.

Adobes, how made, 135.

Amalgamation, when first practised in Mexico, 68, and in Peru, 260. Process described, 268 to 270.

Archbishoprics. Chuquisaca, or La Plata, 132. Lima, 130, 322, 352.

Aqueducts, of Maypo, 137, 241, 312; of Colina, 137, 234.

Alfalfa, See Lucern.

Alligators, or caymans, 80.

Ants, 85.

Apes and Monkies, 95, 96.

Asses, 93.

Anta, or Tapir, 82.

Achilles, Ship, its mishaps, 5, 8, 9, 11, 13, 14.

Archimedes, 315.

Amazons of Chile, 341.

Almagro, Diego, de, 17, 336.

Azara, 128, 131.

Ariosto, 100.

Brazil, first landing in it, 16. Fertility, 35, 36. Population, 101, 104, 105, 106. Good grasses scarce, 41, 90.

Baffin's Bay, 19.

Bays of Chile, open to N.W., 33; of Valparayso, 243; much exposed, 365; of Coquimbo, 263; of Penco, or Concepcion, 338.

Buenos-ayres, State and City of. First Spanish settlement there, 16. Situation and description, 13, 15, 128, 143, 144, 145, 153, 245. Climate, 17, 135, 143. Population, 128, 130. College and education, 144. Ladies, 144. Market, 144. Government, 144. Hostility of the Indians, 201, 348.

Bogota, or Santa Fe de, the Capital of Columbia, 106.

Breakers, Sea, in the pampas, 153, 280.

Baths, of Colina, or Peildehue, 234, 295; of Cauquenes, 308, 311; of the Inca, 220. At Peyne, in the river Claro, 307.

Bishoprics. Asumpcion, 130; Arequipa, 130; Buenos-ayres, 130; Cordova, 130; Cuzco, 130; Concepcion, 322; La Paz, 130; Santiago, 322; Tucuman, 130.

Bridges, Inca's described, 219, 222, 232; Devil's, 224; of Indian construction, 241, 289, 304; few in Chile, 304, 309.

Boats, Ferry, in Chile, 304.

Buildings and Dwellings, described, 46, 135 to 137.

Bellows, for smelting copper, 258.

Balls and Balling, described, 142.

Bark, of Peru, 43.

Barley, wild, 42, 230, 313; cultivated, 37, 182; how used, 254; price, 320.

Beans, kidney, 37, 117, 182; culture, 288; price, 320.

BREAD, price of the best wheaten, 320.
BEEF, quality, 92, 290; how dried and used, 214, 292; price, 144, 320.
BUTTER, 92; price, 320.
BRANDY, 40; how made, 295; price, 320.
BIRDS, 89. Eagles, 89, 356. Parrots, 253. Flemings, 308. Partridges, 144, 356.
BEAR, 84.
BISON, 87.
BAT, Vampire, 85.
BOA Constrictor, 81.
BUGS, 86, 169.
BUTTERMERE, the Queen of, 149.
BAFFIN, William, 19.
BENALCAZAR, Sebastian de, 17.
BONPLAN, 84.
BARTON, Doctor, 192.
BORN, Baron, 272.
BALENZUELA, Diego, 309.
BAYDES, Marquis de, 345.
BOLIVAR, General, 352.
BRITISH landing in Chile, 344.
BATTLES, of Chacabuco, 230, 351; of Rancagua, 350; of Cancha-rayada, 351; of Maypo, 352.

CHILE. Invaded by Spain, 17. Viewed generally, 99. Situation, boundaries, 103, 268, 329. Population, 104, 106, 353 to 355. Foreign inhabitants, 236, 244. Very few slaves, 356, and noxious animals, 86, 356. Large private estates, 133, many of which entailed, 134. Structure beautiful, and bowls a peculiar feature, 229, 230, 309; but large longitudinal vallies in its southern parts, 309. Lakes, rivers, and islands, 364. Climate, 245, 316; very healthy, 317, 328. Natural vegetation, 25, 230, 235, 250, 274, 278, 296, 308, 310, 356. Agriculture and Mines, See *Agriculture and Mines.* Trade and manufactures, 117, 261, 298 to 300, 322: Statistic division, 353, 364. Government, 104, 353. Revenue, 356. Judicature, 356. Ancient or Indian Chile, before the Spanish conquest, described, 329 to 336. Historic sketch of Chile, from its invasion by the Peruvians to the conclusion of the wars between the Spaniards and the Araucanos, 336 to 346, and from that time to this, 350 to 353.

CHILENOS. Natural disposition, 114, 283, 288. Feelings, 115, 116, 283, 328. Some particular features, 115, 116, 139, 228, 288, 325, 326. Stature, 283, 286. Dress and fashions, 140, 235, 238, 284, 301, 324, in 1786, 310. Mode of living, 259, 265, 306, 307, 328. Hospitality, 261, 283. Disinterestedness, 283, 308. Fitness for military service, 287. Migrations, 299. Horsemanship, 301, 327. Not induced to activity and industry, 260, 265, 299. Fond of gaming, 328. Most of them abstemious, 259, 328. Education, 283, 307, 322 to 324. Women, early grown up, 307, 355, and not employed in hard work, 288. Ladies' religious devotion and exercises, 325, and musical aptitude, 326. Children, in Santiago, 355, and in cottages, 355, remarkably small, 355. Cottage scenes, 137, 262, 283. Ball in a chapel, 262. Shop scene, 265. Tertulia scenes, 240, 265. Night scene, 278. Splendid dinner, 306. Street scenes, 321. Fair scenes, 288, 357. Ancient or Indian Chilenos described, 329 to 336. Their origin doubtful, 107, 335.

CHILOE, Archipelago and island of, when first discovered and conquered, 18, 341, 342. Inhabitants, 329, 342, 353, 355. Trade and manufactures, 300, 342. Insurrection, 345. Present situation, 353, 364.

CASTRO, the capital of Chiloe, 342, 353.

CANADA, first settlement in, 19. Population, 106.

CALIFORNIA, when first discovered, 19.

CARIBBEAN or WEST INDIAN ISLANDS, 18. Inhabitants, 104, 106, 108.

CUBA, Island of, 104.

CARACCAS, when first discovered, 17. Now part of Columbia, 103, 106.

COLUMBIA. Situation and population, 103, 106. Its independenca nearly completed, 352.

CAMPOS PARECIS, 126.

CUYO, when conquered, 340, 342.

CORDOVA ..... State and Town of, 24, 130, 148.
CARANGAS .... " " 132.
COCHABAMBA " " 132.
CHIQUITO .... " " 132.
CHUQUISACA " " 104, 132.

CORRIENTES, Town of, 130, 131.
COBIJA ..... " 268.
CALLAO ..... " 352.
CAUQUENES .. " 364. Baths, 308, 311.
CURICO ..... " 310, 346, 364.
COULEMU ..... " 364.
CANETE ..... " 341, 342.
CASA BLANCA " 242, 300, 301, 346, 364; lately overthrown, 359.

CONCON, hamlet of, 296, 359.

CHILLAN, District and Town of, 310, 345, 353, 364.
COLCHAGUA " " 310, 346, 353, 360, 364.
COPIAPO " " 267, 346, 353, 364.
COQUIMBO " " Situation and description, 263, 274, 353. Foundation, 338. Population, 263, 354, 364.

CONCEPCION, District and City of; situation and description, 310, 353. Foundation, 338. Often destroyed, 340, 341, 343, 344, 346. Population, 310, 354, 364.

CORDILLERA, See MOUNTAINS.

Casuchas, shelters in the higher Andes, 216, 227, 349.
Corral, an inclosure for cattle, 139, 205.
Chartreuse, Great, a considerable monastery in France, 210.
Chinese Wall, great, 135.
Chalk, not found, 136.
Congresses. In Tucuman, 129; in Santiago, 350; in Lima, 352.
Climate. Of the Andes in Chile, 27; where excessively dry on both sides the Andes of Chile and Peru, 25, 26, 27, 32, 35, 146, 150, 167, 181, 204, 211, 273, 316, 317; and where damp and rainy, 26, 35.
Carriage. Carts of the pampas, 173, 174; of Chile, 241, 321. Private carriages of Santiago, 239. Public coach between it and Valparayso, 326. Mule carriage, 175, 241, of wood and iron, 301.
Chocolate, its origin, 117.
Chicha, a fermented drink, 292. Price of grape-chicha, 320.
Cigars and Smoking, 38, 143, 252, 265.
Cheese, 94; price of it, 320.
Cochineal, 45, 149.
Curare, or Ticunas, a poison, 44.
Cassava, 37.
Cabbage, 38, 182.
Coals, in Chile, 48, 72, 260; in New Mexico, 72.
Crocodiles, 80.
Caymans, or Alligators, 80.
Cougouar, or American Lion, 82.
Chigua, or Jigger, 86.
Camel, of Peru and Chile, See Sheep. The Dromedary introduced into Peru, 95.
Chilihueque, See Sheep.
Cows, Sea, or manatee, 82; mountain cow, Anta, or tapir, 82; common cow, See Oxen.
Chinchilla, and its skin, 88, 300.
Cattle, of the pampas, where chiefly found, 31, 153, 168, and when first brought from Spain, 89, 90. Its rapid increase, 90, 91. Smaller in Brazil, 92. Caught with the lazo, 147. Seen but little of it in Chile, 250, 282, 314. How managed in Chileno estates, 305. See Oxen and Horses.
Creoles, a mixed race, 105.
Cholos " 105.
Chinos,..... a South American tribe, 115.
Chiquillanos " 329.
Cuncos..... " 329, 348.
Columbus, Christopher, 16.
Cabral, Pedro Alvarez, 16.
Cabot, Sebastian, 16, 19.
Cortes, Ferdinando, 19, 107, 110.
Cook, Captain, 19, 51.
Cowper, 180, 185.
Cicero, 190.
Coindet, Doctor, 194.
Carrera, 195, 197, 201.
Cochrane, Lord, 247, 286.
Clarke, Captain, 287.
Castro, de, 338.
Castillo, de, 342.
Caupolican, war-Toqui of Arauco, 340, 344.
Clentaru " 345.
Curignancu " 346.

Darien, Isthmus of, 21.
Deserts, or Travesias, of San Luis, 164; of Atacama, 268.
Dikes, or veins in mountains and elsewhere, See Rocks.
Diamonds, where chiefly found in America, 75. Mines of Brazil, and how wrought, 75; in prohibited districts, 76.
Distilleries, 56, of Chile, 295.
Dancing, at Mendoza and in Chile, 187; contrasted with gaming, 186, 187. Zapateado dance, 262, 328, 357.
Diseases. Small pox introduced into Arauco, 340.
Dews, in Chile, 26, 356.
Dying Woods. Brazil, 45; Campeachy, or Log, 45; Fustic, 45.
Dying, 45; how performed in Cordova, 149.
Deer, 88.
Dogs, wild and domesticated, numerous, 89, 278; ovejeros, or sheep dogs, 139.
Dutch landing on the coast of Chile, 344, 345.
Drake, Sir Francis, 19.
Davis, John, 19.
Damocles, 186.
Dobrizhoffer, Father, 120, 131, 192.
De la Perouse, 310, 354.

Europe. Its population, 106.
Entrerios, State of, 131.
Equator. Seamen's diversion in passing it, 9.
Earthquakes. In Quito, 30. In Chile, 245, 268, 316, 343, 345, 346; latest shocks, 358 to 363. Seldom felt across the plains of South America, or below the eastern declivity of the Andes, 46, 360. In Syria, 360. Some general effects of them, 360. Less injurious to Chile than may be supposed, 364. Comparative statement of many earthquakes and volcanic eruptions, 361 to 363.
Estancia, or Huilquilemu, Town of, 364. Estate, 134.
Encomiendas. Lands held under a peculiar tenure, 120.
Education. At Buenos-ayres, 144. In the pampas, 176. At Mendoza, 185. Coquimbo, 264. Guasco, 267; in haciendas, 306. At Santiago, 322 to 324. Valparayso and Aconcagua, 324. Of Chileno ladies, 307, 324; in Arauco, 333. Its importance, 322, and progress in some countries, 357.

Emeralds. The finest in Peru, 76.
Eagles, 89, 356.
Eel, electric or gymnotus, 80.
Ercilla, Alonzo de, 347.

Florida. Its situation and population, 102.
Fazenda, a large estate and farming mansion in Brazil, 134.
Furnaces of Chile, for smelting copper, 256, 272; of Indian construction, or guayaras, 270.
Fishing, not extensive in Chile, 286; near the islands of Juan Fernandez, 300.
Flints, 315.
Fruits and Fruit Trees—See Trees.
Fern, not seen, 152.
Flax, 40.
Fleas, 86, 169.
Frezier, 299, 310, 336, 347.
Frieire, General, 353.

Greenland, when first discovered, 19.
Guyanas, European settlements in them, 18; population, 104, 106.
Guasco, District and Town of, 267, 353, 364; foundation, 346.
Gualqui, Town of, 364.
Goitres, very prevalent at Mendoza, 188; conjectures on their origin, 189, 190; extracts and informations concerning them, 191 to 194.
Games and Sports. Rouge et noir, 288, 358. Manille the whist of South America, 307. Chess, backgammon, and goff, or bandy-ball, played by the ancient Chilenos, 335, 336, 349.
Game, very abundant near Buenos-ayres, 144, and scarce in Chile, 356.
Grasses of the pampas, 31, 152, 162, 167; of Angola, cultivated in Brazil, 41. Couch, 42. Yellow clover in Chile, 41, 305. Ceponcilla, 42; very glutinous in the higher Andes, 42, 313. Lucern, See Lucern. Natural and cultivated, 366.
Gourds, 38, 170, 182.
Guasgarito, or Palometa, 80.
Gymnotus, or electric eel, 80.
Guemul, or Chileno horse, 85, 90.
Guanacos, 87, 250, 314, 349, 358.
Goats, 94, 250.
Guaranis, a uumerous tribe of South America, 109; converted by Jesuits, 122; expelled from their towns and lands, 123.
Guilliches, A South American tribe, 329, 341.
Guayacas, " of small stature, 111.
Gall and Spurzheim, 114.
Garay, Juan, 17.
Gamboa, 18.
Grijalva, Juan de, 19.
Gonzaga, de, 346.
Garcillasso de la Vega, 192.

Hudson's Bay, when first entered, 19.
Huilquilemu, District and Town of, 353, 364.
Hacienda; a large estate and farm mansion, 134; described, 259, 292, 300, 302.
Hedges, near Buenos-ayoes, 145; in Chile, 229, 247.
Hides, of very expensive conveyance in Chile, 282; few exported from thence, 300; price, 282, 320.
Hams, chiefly cured in Maule, Concepcion, and Chiloe, 95, 300.
Hierba of Paraguay, or coca; where got and consumed, 38; its high price, 38, 320; tried in England, 39.
Hemp, 40.
Heath, not seen, 152.
Hare of Peru, or viscacia, 88.
Hormiguero, 150.
Hogs, 94, 168, 282, 290; wild, or pecaris, 84.
Horses, described, 92; wild, how caught and tamed, 142; the best of Chile, 250; their good qualities and powers, and how exerted, 172, 326; price, 250, 320; seldom shod, 72. Guemul, cloven-footed, or Chileno, 85, 90.
Herdsmen of the pampas described, 138.
Habilitadores, who assist miners in Chile, 266.
Hudson, the navigator, 19.
Horace, 1, 2.
Humboldt, Baron de, 16, 22, 23, 30, 31, 32, 43, 48, 49, 50, 64, 68, 77, 84, 102, 103, 105, 107, 124, 129, 177, 233, 269, 360.
Helms, 24, 32, 33, 64, 88, 151, 153, 191, 232.

Islands. Canaries, 6; Coquimbanes, 364; Cape Verd, 6; Cuba, 104; Chiloe and Archipelago (which see) Juan Fernandez, 300, 353, 364; Lobos, 13; Madeiras, 6; Mocha, 364; Portorico, 104; Quinquirina, 338, 364; Santa Maria, 364; Wight, 5; West Indian or Caribbean, their Population, 104, 106.
Itata, District of, 353, 364.
Jujuy, State and Town of, 130.
Imperial, Town of, 339.
Intoxication, Its effects, 10, 346.
Itineraries of the basin of La Plata, 130, 131.
Immortality of the Soul, Belief in it a general feature in the world, 118.
Institution, Royal, of Great Britain, 233.
Iatropha manihot or mandioc, 37, 117.
Indigo, 45.
Jaguar or American Tiger, 84.
Jigger or chigua, 86.

Jesuits, many of their missions decayed, 79; their first arrival in Paraguay, 119; means of conversion, 121; institutions and progress, 122; downfall and suppression, 123.
Indians, very much decreased, 101; described, 106 to 119; destroy their own progeny, 111, 112; their agriculture and manufactures, 116, 117; religion, and civil institutions, 117, 118; slavery and slave trade, 113, 119; miseries, 120 to 123; insurrections and melioration, 124, 345; small numbers in the pampas, 104, 128.
Incas, both sovereigns and divinities in Peru, 110; Atahualpa, 107, 110, 336; Manco Capac, 107, 110; Manco, 336; Sayri Tupac, 343; Yupanqui, 336.

Kotzebue, Captain von, 294, 317, 354.

La Plata, Basin and States of, formerly a Spanish Viceroyalty; situation, description, and population, 104, 106, 126 to 133; declaration of their independence, 129; attempts at a federal union, 130; chief roads and settlements, 128, 130; inhabitants described, 138 to 141, 170, 175 to 179; estates very large, 134.
La Paz,..... State and Town of, 130, 132.
Lipes,..... " " 132, 268.
La Plata, or Chuquisaca, " " 132.
Luxan, Town of, 146.
Ligua " 248, 364.
Lima, City of, 130, 352.
Louisiana, its situation and population, 102.
Labrador Coast, or New Britain, 19.
Lakes; Aculeu, 28, 308, 364; Chorillo or Bebedero, 28, 127, 163, 166; Catherine, 163; Guanache, 166; of Geneva, 163; Juncal or del Inca, 225; Lomond, 34; Laquen or Villarica, 364; Nahuelguapi, 364; Paria, 132; Tay, 358; Tituaca, 132, 166; Taguatagua, 364; Windermere, 34, 308; Waldestädten or Four Cantons, 130.
Labour, price of it in Chile, 266.
Lazo and Lazoing, described, 141, 147.
Languages; the Guarani, Tupi and Omagua most extensively spoken in South America, 109; some words apparently the same throughout America, 109, 292; *Lan*, a termination of most Mexican provinces, 110; the Guarani, Guichan and Araucano, adopted by the Jesuits, 122, 333; the Araucano very perfect and beautiful, 330.
Lightning, very frequent in the Andes of Chile, 27, 317; and at Buenos-ayres, 143.
Lime, quick, generally dear and bad, 135, 231.
Lucern or Alfalfa, very extensively cultivated, 41, 163, 182, 263; most useful and substantial food for beasts, 90, 366; how cultivated in Chile, 234, 254; not observed in uncultivated lands, 305; inclosures of it, or Potreros, 306; price, 182, 320.
Lac or Lacca, 46.
Lama or Llama, sheep of Peru and Chile, 87, 90, 279.
Lion of America, or Cougouar, 82, 83.
Linx, 87.
Lamantin or Manatee, 82.
Locusts, great swarm seen, 167.
La Fontaine, 61.
Lavater, 114.
Luccock, 192.
Lewis, Captain, 287.
Larrain, Marquis of Casa, 304 to 306.
Loyola, Martin de, 343.
Las Heras, General, 351.
Lientur, War-Toqui of Arauco, 344.
Lincopichion " 345.
Lautaro, Vice Toqui, 340, 344.

Mexico; conquered by Spain, 19; situation, population, &c. 102, 106; former inhabitants, 106, 107, 110; division and tenures of lands, 110; religion, and civil institutions, 117, 118; City of, 106.
Magellan or Magalhaen, land of, 25, 104; Straits of, 18.
Mountains.
Andes, described, 20 to 22, 54; length and mean height, 22; northern and southern extremities but little known, 73, 74; as also their eastern declivity in Chile, 74; appropriated in Chile, 133; great distance from which they can be seen, 164; passes over them into Chile, by the Cumbre of the Volcano or Val Putaendo, 201, 350, 351; the Patos, 351; the Portillo, 201, 350; the Planchon, 351; cost of passage and requisites for it, 202; western declivity more abrupt than the eastern, 232; their appearance at and from the Cumbre, 223 to 226, and from l'Engorda, 315; very metallic, 230, 292; some small vallies in them described, 312; lower Andes, generally of smooth forms, 313; want trees, 52, 316; much water lost in them by evaporation, 314; their cordillera or central ridge in Chile, 21, and some of its characteristic features, 27, 218, 226, 232, 314; what is felt in passing it, 349; highest summits in Chile, Arauco, &c. 364.
Alps compared or contrasted with the Andes, 53, 165, 217, 291, 313, 314, 315; Aguapehy, 126, Ætna, 22; of Brazil, &c. 23, 126, and their mean height, 66; Blanquillo, 364; of Caraccas, 23; of Chiquito, 24, 126; of Cordova, 24, 33, 150, 153, 233; Chillan, 364; Chimborazo, 209; Chacabuco, 230, 292; Corcovado, 209, 364; of Cumberland, 34, 218; Dorado, 23; Dormida, 295; Descabezado, 364; Dhawalagiri, 209; Engorda, 314; Frio, 76;

Gold mounts, 273; Giants, 233; Great Saint Bernard, 210; Hartz, 207; Jura, 163; Longavi, 364; Mount Blanc, 164, 165, 209, 315; Mount Rosa, 165; Manflos, 364; of Mendoza or Uspallata, and its formation, 65, 165, 203, ascent and description, 204 to 206; Organ, 33; Parime, 23, 33; Potosi, 133, 260; Pyrennees, 34; Popocatepetl, 209; Righi, 210; of San Luis, 24, 161; of Santa Cruz, 126; Stony or Rocky, 22; Skiddow, 224; Saint Gothard, 224; Tupungato, 216, 235, 314, 315, 321, 364; Tiltil, 231, 295; Teneriffe, 6; Trossacks, 163; of Uspallata, see of Mendoza.

Mountains of conic form, 13, 33, 153, 155, 161, 233; one of a remarkable tint, 247; some may have been formed by the wind, 280.

METALS and MINES.

GOLD, where chiefly found in America, 66, 67; and in Chile, 364; said to abound in Arauco, 67, 73, 310; obtained in Brazil and Chile in former banks of rivers, 29, 67; how washed for, 255, and amalgamated, 270; in Europe, 272; excavations for it, 247, 249, 295; Mines of Tiltil, 231, 295; of Carolina, 233; of Valparayso, 298; of Talca, 310; of Petorca, 249; of Guasco, 273.

SILVER, where chiefly found in America, 62 to 66; principal mines there, 63, 64, and in Chile, 364, and in Europe, 271; how formerly obtained in America, 260, 270; and now by amalgamation, 268 to 270, 272; in Saxony and Hungary, 271; at Potosi, 133; on whose mountain 6000 furnaces once in activity, 260.

GOLD and SILVER annually produced in Europe, Northern Asia and America, 78.

COPPER, where chiefly obtained in America, 69, and in Chile, 364; how, and whereto exported, 69, 267; great expence of its reduction in Chile, 70, 255, and of its exportation, 261; smelting process, 255 to 258, compared with the reduction of Cornish ores, 257, 258, veins of it from Yllapel to Copiapo, 263, and conjecture on their direction, 70; near Guasco, 273; found nearly pure at Payen and Cauquenes, 71, 310, 311; mode of contracting for it, 267; and of assisting the miners, 266; with some description of these people, 261.

Platinum, 69; Mercury, where chiefly found in America, 68; but mostly imported from Europe, 69; Iron, 71; Iron pyrites, in Chile, 71, 274, from the N. W. coast, 287; Lead, 71; Tin, 72; Arsenic, 72; Antimony, 72; Manganese, 72; Zinc, 72; natural Brass, 71.

Metals very abundant in the Andes, 62; formalities for opening a mine in Chile, 321; chief mines there, 364.

METEOROLOGIC REMARKS, 379.

MANOA, reported City of, 23.

MOXO, State of, 132.

MISQUE, State and Town of, 132.

MONTEVIDEO, Town of, 13, 131.

MALDONADO, " 12, 131.

MENDOZA, State and City of, 166, 169, 180, 182 to 184; foundation, 342; population, 183; trade, 183, 366; government, 184; inhabitants described, 185 to 189; earthquake, 360.

MAULE, District of, 353, 364.

MELIPILLA, District and Town of, 300, 346, 353, 364; lately overthrown, 359.

MEADOWS, natural, or Vegas, few in Chile, 305; one described, 305.

MUSEUM, BRITISH, 233; of Geneva, 233.

MONTE, a plantation of peach trees, 152.

MANUFACTURES of leather, 282, 302, 303; of other articles, 318, 319.

MILLS, for silver, 268; gold, 270; corn, 297; Indian substitute for them, 284, 349.

MISSIONS, on the Uruguay, called Reductions, 122; their decayed state, 79, 101, 124; in Chiquito, 122; in Arauco, 345.

MONASTERIES, 105, 132, 244, 275, 292, 322.

MATERIALISM, 277.

MEDICINE; with the Indians, 118, 333; in Chile, 264, 290, 328.

MUSIC; in Chile, 239, 280, 289, 357; characteristic feature of it, 327; Indian, 296; effect of music, 281; concerts at Santiago, 326.

MAYORASGOS, or entailments, 134.

MATÉ, an infusion of hierba, 39; Maté-drinking, 39, 266.

MAIZE, 36, 117, 356.

MANDIOC, or Manihot, 37, 117.

MELONS and WATER MELONS, 40, 182; price, 320.

MADI, or Madia, 40.

MONKIES, 95.

MOSQUITOS, 85, 169.

MAMMOTH, or Megatherium, 79.

MASTADONTE, or American elephant, 79.

MANATEE, sea cow, or lamentin, 82.

MITZLI—See LION.

MULES, 93; their hard fare in crossing the Andes, 203, 215; price, 250.

MULETEERS; of the pampas, 175; of Chile, 301.

MUTTON; very little consumed, 94, 314; price at Buenos-ayres, 144.

MILK; cow's, 92; goat's, 94, 248; price, 320; Nata, or cake made from it, 357.

MOXOS, a South American tribe, 132.

MUYSCAS " 106, 107.

MOLUCHES " 349.

MONGULS, an Asiatic people, 107.

MULATTOS, a mixed race, 105.

MESTIZOS " 105.

MITAYOS, or taskmen, 121.

Manco Capac, Inca of Peru, 107, 110.
Montezuma, King of Mexico, 107, 110.
Magellan, or Magalhaens, 18.
Molina, Abbé de, 42, 59, 69, 71, 83, 103, 261, 347.
Mendoza, Pedro de, 79.
Mendoza, Garcia de, 341.
Marco, Governor, 350.
Miranda, see Moreno, 339.
May, 192.
Mahuida, 193.

New Granada; when conquered by Spain, 17; situation and population, 103, 104; new part of Columbia, 105.
New Spain, now the Empire of Mexico, 102—which see.
North America.....when first discovered, 18.
Newfoundland ..... 18.
New Britain, or Labrador Coast ..... 19.
New Albion ..... 19.
Nata, a milky food, 357.
Nutmeg, 44.
Nutria, or otter-cat, 349.

Orero, Town of, 130, 172.
Ongaro ..... 341.
Oats, not cultivated in Chile, 270; wild, 12, 230, 313.
Ochona, 37, 192; price 320.
Oxen described, 91, 92; how caught and slaughtered, 141, 147; large breeds, 91, 234.
Ostriches, 88; how caught, 142.
Quanco-Quenco, 55.
Quanchas, a considerable South American tribe, 109.
O'Higgins, Ambrosio, Viceroy of Peru, 241, 260, 330.
O'Higgins, Bernardo, Director of Chile, 241, 307, 325, 351.
Osorio, General, 331.

Peru; when first discovered, 17; climate, 25; situation and population, 103, 109; its former inhabitants, 107, 108, 118; tenures of land, 110; religion and judicature, 110, 117, 118; invasion of Chile by the ancient Peruvians, 335, and of Peru by the modern Chilenos, and revolution, 352.
Peruvian, new part of Columbia, 20.
Pasia, Palm of, 28.
Plains or South America, 30; of Caracas, 31; of Parima and Chiquito, 31; pampas, 31, 41, 127, 150 to 152, 154; appear as if they had been undulated by high winds, 280; rocks in them like former sea breakers, 153; of Guamuco, 127; of Mendo, 127.
Paraguay, State and Town of, 150, 151.
Potosi..... 130—See Mines.
Paria ..... 150.
Puno, Town of, 130, 152.
Peyorca ..... 249, 361.
Perdiz ..... 340.
Pichileuv, District of, 293, 361.
Posthouses in the pampas: Arrecife, 146; Guardia, 148; Cruz alta, 148; Saladillo, 200; Barrancas, 196; Fraileamuerto, 145, 193; Medrano, 139, 150; Punta de Agua, 193; Pavon, 149, 150; Desaguadero, 194; general description of these, 169 to 179, and of the postboys, 172.
Paraitic, terrestrial, partially described, 269.
Plocomus of Chile, 293, 308.
Partridges of the pampas, 31; of the Andes, 62, 313, 336.
Potatoes, 37, 187; how cultivated in Chile, 238; price, 320.
Pumas, vid. Tigers or Cougouars, 88, 291.
Para Apelar, 80.
Patriotism, or Contagion, 80.
Pecans, or wild hogs, 84.
Poultry, abundant, 38, 282; price, 320.
Pork; its goodness and quality, 91, 290; salted, 290; by a peculiar process, 292.
Puelches, a South American tribe, 107.
Parroquians ..... 18, 115.
Peruvians ..... 110, 322, 349.
Pevas..... 342.
Pedrahuenes ..... 329, 347.
Pascual Cayot ..... 329, 348.
Peacocks..... 326.
Pedro, 152.
Pythagoras, 159, 203.
Pork, 5.
Pizarro, Francisco, 17, 107.
Pezuela, Viceroy of Peru, 330, 351.
Parlamento, War-Treaty of Arauco, 343, 344.
Potawatomies ..... 344.
Pare, de, 192.

Quito, 107; when conquered by Spain, 17.
Quintero, Hamlet and Estate of, 247, 352.
Quillota, District and Town of, 288, 300, 353, 364; lively over-thrown, 359.
Quadra of land, 136, 252; of house, 136.
Quinta, a small farm, 134.
Quiwe, or Quippes, a reckoning knotty string, 108; Pron in Araucu, 333.
Quadroons, a mixed race, 105.
Quesada, G. X. de, 17.
Quemos, de, 342.

Rocks.
Agglomerate or Breccia, abundantly found on the summit of the central ridge of the Andes, 32, 218, 225, 295.

Argillaceous or clay-slate, or schist, 29, 33, 139, 271, 290, 315, 349; the base of the mountain of Nicodemo, 208; and of the chief silver veins, 64, 65; dislocated by the volcano of Uspallata, 65, 202; further to and up the Andes, 214, 216, 230; apparent transition of it into porphyry, 216; where it begins to disappear, 218; not so conspicuous in the eastern declivity, 226; so much fissured by the mines to exhibit a metallic appearance, 247; copper veins in it, 263; remarkable range of dappere rocks, 264; highly micaceous slate, 153, 274; peculiarly extensive near Concepcion, 316.

Basaltic, literally, rock-horn, 106 seqq. 339.

Calcareous; remarkable rocks of, on shells, 155, 156, 281; Lime Stone, 234; Walls of the Inca's bridge, 212, 227; Gypsum, 200.

Granite. Small granitic veins in the summit of the Andes, 72; lower mountains of South America chiefly formed of it, 30, 33, 101; of cubic forms, jointed crystals, along the coast of Brazil, 33; and likewise to the west of the Organ mountains, 33; reddish granite of Cordova, 33, 151, 153; very remarkable rocks of decomposing granite in Brazil, and conjectures on their formation, 33, 134 to 139, 261, 271, 310; fine red granite or porphyritic rock near Santiago, 349; of a finer grain, or more porphyritic in the Andes, 241.

Hornstone, large masses of it radiating thence, 213; Rollocks near Mendoza and Uspallata covered with small porphyritic fragments, 203, 206; regular veins of it, 238; appearance of broken shell-fish, 231.

Siliceous, found high in the Andes, 236.

Sandstone, aqueous crust of, 11; often candied by volcanoes, 202, 227; remarkable structure formed by it in the central ridge, 219; much of it seen at the summit of that ridge, 219, 225; and on the western declivity of the Andes, 228, 283.

Limestone very abundant in Chile, 91; sulphureous looking rocks near the Inca's bath, 276; rocks on the passage which appear to have been breakers, 155; rocky dikes or veins in the central ridge of the Andes, 232, 256; and in lower mountains and hills of Chile, 244, 256; forming a characteristic and expensive feature in that country, 339; so do likewise rocks of a bluish grey or hornstone colour, 63, 218, 231; rocks apparently formed of small pebble fragments, 276.

Rivers.

Amazon, 24, 100, 213; Aar, 149; Arecife, 146; Aconcagua, 235, 246, 269; Biobio, 17, 25, 103, 310, 364; Clyde, 222; Colmabia, 227; Colorado, 126, 165, 366; Cuyck, 190, 216; Chairvia, 264; Colina, 237; Chuapa, 240; Coquimbo, 262; Copiapo, 287; Cachapoal, 311; Canten, 320, 364; Desaguadero, 26, 127, 166, 168; Guasco, 265; Inca, 294; Loiro, 31; Ligua, 248; Longotoma, 240; Lumari, 276; Maypu, 28, 106, 181, 207, 235; Maule, 364; Maypu, 27, 304, 311; Mapocho, 286; New River, 161; Oronoko, 24, 31; Orcone, 228; Plata and Parana, 12, 13, 15, 21, 126, 127; Paraguay, 21, 126, 161; Pilcomayo, 127; 135, 23; Quarta, 127, 161; Quero, 127, 161; Quillota, 210, 289, 359; Quilotura, 247; Quillimari, 249; Rio Bueno, 364; Rhine, 33, 34; Rhone, 25, 28; Salado, 148; Salado, 268; Sauce, 161; Sinfondo, 311; Tolten, 364; Tercero, 28, 118, 166, 192; Tinguiririca, 127, 196, 268, 181, 201; Tupungato, 181, 240; Thames, 28, 34, 148; Uruguay, 24, 131; Vermicho, 131; Yse, 34, 311; Vinchina, 264.

Smallness and scarcity of rivers in Chile, Peru, &c. 24, 65, 27 to 30; indications that there have formerly been many very large, 28, 29, 68, 249; small Lakes in Chile and Andes, 304.

Roads, from Buenos Ayres to Paraguay, 128, 130; to Peru, 128, 130, 150; and to Chile, 128, 130, 146, 162, 171; from Santiago to Valparaiso, 241 to 243, 295, 300; to Coquimbo, Guasco and Copiapo, 245, 249, 262, 284, 655; to Concepcion, 305, 335; from Atacama to Potosi, 268; of the Incas, 228.

Repartimientos, lands held under a peculiar tenure, 120.

Rescio, the cattle of an estate collected into an enclosure, 136, 322, 344.

Racing, at Santiago and Valparaiso, 339.

Rain, not found perfect in America, 28.

Rancagua, District and Town of, 309, 340, 353, 359, 364.

Rice, cultivated in, 44; wild, 42.

Rhenoa, 42.

Rattan Reeds, 81.

Rio Janeiro, 87.

Rats, 88.

Rarbins, Mr Stamford, 193.

Robinson Crusoe, 300.

Social Affairs; slated between Spain and Portugal, 18, 20; its trade and wealth possessed by a few, 134, 322; very large private estates in it, 132; middle rank of society scarcely found in its Spanish colonies, 133.

Santa Marguerita, 17.

Scotland, 165, 177, 222, 288.

Switzerland, 25, 34, 53, 120, 188, 224, 291, 298.

Santa Cruz, State and Town of, 332.

Salta..... 24, 130, 151.

Santa Fe..... 150, 161, 167, 153.

San Luis..... 130, 161 to 168, 343.

San Juan..... 182, 342, 336.

SANTIAGO, District and City of; plan of it, 137; fine situation, 234, 321; description, 235 to 240, 319 to 328, 353; foundation, 337; population, 236, 354, 364; foreigners, 236; theatre, 238; public walks, 238, 241, 319, 321; chimpanas, 239, 258; dances, 239, 240, 357; carriages, 239; ferrullas, 240, 325; rates, 250; market, 319, 320, 326; tapeour or public walk, 238, 321; Cañada, 321; mint, 321; arsenal, 322; custom house, 322; college, 323; university, 323; library, 325; convents, 326; public coach, 326; late earthquakes, 328.

SAN FERMANDO, or Colchagua, District and Town of, 310, 346, 359, 364.

SAN FRANCISCO del monte ..... Town of, 364.

SANTA ROSA, or Aconcagua de Guasco ..... 265, 364.

SOIL; from Buenos-ayres to Mendoza, 31, 148, 151, 166, 182, 203; gravel not seen on it, nor in Chile, 32; its great fertility, 33, 36; both very metallic and fertile in Chile, 61.

SALT; common, naturally more abundant in the west than in the east of America, 72; in the pampas, 151; in Chile, 73, 268, 295; price, 320.

SALTPETRE, or Nitre, 75.

SNOW; consumption, conveyance and price, 314, 320.

SULPHUR, natural; in Chile, 72, 268.

SHELLS, sea; extensive deposits in the pampas, 148, 151, 153; their fragments along the coast of Chile, 155; and considerable deposits, 264, 310.

SAPPHIRE; not found perfect in America, 76.

SCULPTURES in rocks; on the banks of the Orinoko, 68; near La Paz, 182, 233; and near San Luis, 232, 233.

SADDLES, STIRRUPS and SPURS; in the pampas, 149, 171; in Chile, 301.

SPINNING; how effected, 148, 349.

SOAP; how made in Chile, 319; price, 320.

SMUGGLING, very considerable, 77, 321.

STEAM-NAVIGATION, 365.

SLAVERY, 113, 119, 356.

SARSAPARILLA, 44.

STICKTAC and SHELLAC, 46.

SAGO, 50.

STRAWBERRIES, 40.

SERPENTS, 81, 82; one very large, 131.

SHEEP of Peru, or Llama, 87, 90, 270; and Vicunia, 87; of Chile or Chillihoequa, 87; common sheep, 93; how watched in the pampas, 139; few in Chile and much deteriorated, 282, 314; price, 320.

SHAKESPEARE, 178.

SOUTHEY, Robert, 66.

STAUNTON, Sir George, 105, 135, 193.

SOLIS, Juan Diaz de, 19.

SAN MARTIN, General, 281, 331.

SANDWICH ISLANDS Men, 287.

TIERRA FIRMA, new Columbia, 103.

TIERRA DEL FUEGO, 18.

TENOCHTITLAN, 106.

TOLTECAS, 106.

TARIJA ....State and Town of, 132.

TUCUMAN, " " 130, 340.

TRUXILLO.... Town of, 185.

TONGOY..... " 364.

TALCA..... " 310, 346, 364.

TALCAGUANO " 310, 364.

TUNUYAN .... " 346.

TEHUS, a considerable South American tribe, 109.

TEMPERATURE—See Climate, and meteorologic remarks.

TRAVELLING; in the pampas, 151, 169 to 175; and in Chile, 246, 248, 261, 275, 278, 283, 302.

TOPAZ, not found perfect in America, 76.

TREES; Acacia, cassia, cavea, or Zenang, 31, 37, 152, 168, 182, 226, 230, 242, 247, 259, 275, 279, 306, 313, 349; one very large, 40; Algarob, or carob, 44, 48, 132, 149, 165, 208, 223, 230, 242, 247, 250, 279, 306, 313, 349; Aloe, 44, 145, 228, 250; Almond, 40, 304; Apricot, 304; Apple, and fruit, 40, 182, 183, 304, 347; Bread, 45; Banana, or Plantain, 45, 112; Bread, 51; Coffee, 50, 42; Cedar, 46; very large in Chile, 46; Cacao, 50, 42; Cotton, 36, 43, 282; Chestnut, 304; Coca, 38; Campeachy, 45; Cow, or Milk, 49; Chañar, 49, 169; Cinnamon, wild or Bejghe, 44, 286; Cherry, and fruit, 40, 304; Cypress, 183; Fustic, 45, 48, 162; Fig, and fruit, 40, 48, 168, 183, 265, 303, 304; one very large, 43; Lemon, 40, 180, 303, Larch, 47, 83; Milk, 49; Mulberry, 45; Myrtle, 167, 213, 314; Maqui and fruit, 313; Maytenus, 44; Orange, and fruit, 40, 183, 303; Olive, 49, 303; Poleo, 169; Peumo, 303; Poquil, or Panke, 303; Poplar, 168, 168, 230; Palm, and fruit, 50, 51, 250, 296; Pine of Araucu, or Pehuen, 52, found in Brazil, 52, of the Alps, 53, of the N.W. Coast, 287, and of New Norfolk, 287. Pomegranate, 40; Pear, 40, 304; Prickly Pear, 44, 145, 228, 250; Peach, and fruit, 40, 152, 180, 304, 313; Plum, 304; Plantain, 45; Quillai, 54, 227, 313; Sugar cane, 36; Vine, and fruit, 40, 182, 208, 293, 294, 304; Walnut, 162, 304.

Culture of fruit trees in Chile, 303; and their extraordinary bearing, 294; Very slow growth of wild trees, 279.

TIGUNAS, or curare, most deleterious, 44.

TRINITY, wild, 42, 254.

THISTLES, variegated, in the pampas, 31, 151; very large in Chile, 42, 254.

TOBACCO, 38.

TREFOIL, 31, 41, 151.

TIGER, or Jaguar, 81.

TAPIA, Anta, or Mountain Cow, 89.

Torpedo, 61.
Tortoise, or Turtles, 81.
Tasso, 100.
Taxes, Financial, 302 to 304.
Tuakes, Captain, 163.

United States of North America, Population, 105.
Uspallata, Basin, Mountain, and Hamlet of, described, 203 to 208; 211, 212; and mines, 64, 65, 207.
Volcanos and Volcanic Substances; of Uspallata, 65, 205 to 207; of Las Cuevas, 220; of Aconcagua, 227; volcanic hillocks near Mendoza and Uspallata, 203, 204, 208, 209, 212; and in the valley of Cuevas, 220, 221; volcanoes in Chile, 361; Violent volcanic eruptions, 361 to 380.
Uras Tucuye, a poison, 44.
Uzeda, Clement, 264.

Valleys. The large latitudinal valleys of Valley Aconcagua, 215, 286. Chuapa, 239, 276; Coquimbo, 292; Copiapo, 267; Guasco, 265, 267. Juncal, 285; Lagua, 267, 268, 272; Longotoma, 240; Lua, 278; Quillaruri, 239. Quilleta, 238, 240; Salado, 268; these valleys remarkable, 28, 37, 267; accumulation of pebble-stones in them, 208, 212, 214, 218, 238, 267; and their barrier or damming banks, 20, 214, 240; direction of large valleys in Caracoles and Chile, 12, 13.

Large longitudinal valleys of Santiago, 239, 265; and to the southward of it as far as the straits of Magellan, 309.

Smaller valleys; those seen in the Andes, 213; terraces, or shelves in them, 212; Las Cuevas, 216 to 218; Aconcagua, 274; Setenil, 264; conjecture on the formation of many plains or brenas, ondvales, 276.

Valles of Chamonny, 210; North, 210; Ursorn, 224; Allée Blanche, 215.

Valparaiso, District and Town of, situation and description, 243 to 245, 297, 303, 364; population, 244, 254, 361; trade, 244, 298 to 300; how supplied, 300; lately overthrown, 250; late very destructive storm there, 363.

Valdivia, District and Town of, 343, 345, 355, 361; foundation, 340.
Villavicencia, Town of, 291, 305.
Villanueva, 290, 364.
Villarica, 340, 342.
Vanilla, 44.
Vicuna, 87.
Viscacha, or hare of Peru, 88.
Vesputius; Americus, 16.
Valdivia, Pedro de, 17, 337, 338, 340.
Valdivia, the Jesuit, 344.
Villagran, de, 338.
Villagrra; War-Tepid of Arauco, 342.

Winds and Storms. Pampero, 11; its violence, 131; storms frequent in the Andes, 27; many parts of the coast of Chile raised by them, 250, 278; N. W. storms very violent on that coast, 245; the very destructive, 363; southerly wind in Chile, 245, 249.
Wurma, Mustaf, of the Valley of the Inca, 219; of Colina, 266; of Cauquenes, 311.
Waterfalls; of the Niagara, Rhine, and Parmazza, 210; Pisacha, 210; Staubach, 210.
Wells, and how constructed, 102.
Wool, Sheep's, its quality in the pampas, 94, 149, and in Chile, 282.
Woods and Forests; in the pampas, 31; in the basin of Amazon, 81, 79; in Chile—See Chile's natural vegetation, and Timber—for fuel, and price, 320, 328.
Wheat; where chiefly made, 40; of Mendoza, 183, 201; how made in Chile, 282, and superficially considered, 294; of Concepcion, 294, of Tolca, 294; price, 320.
Wheat; where chiefly cultivated in South America, 37, 182; price at Buenos-ayres, 141; in the pampas; 152, and in Chile, 144, 289, 320; species cultivated there, 338.
Wolves, 87.

Yuapil, Town of, 245, 361.
Yanaconas, a Class of slaves, 191.

SOME METEOROLOGIC AND OTHER REMARKS.

The temperature at sea, during our passage of the Tropics, between the 10th of March and 6th of April, 1820, was observed by Doctor Gillies, and ascertained by regular, and three times repeated, daily observations, from 5h. A. M. to 12h. P. M., with the result of which I was favoured, and which gave a mean of 77° of Farenheit, in the shade.

I was likewise obliged with the result of observations made at Buenos-ayres, in latitude 34° 40' S., during several years, by which it appears, that the lowest temperature noticed in winter, at 7h. 30m. A. M., was 28° 30', and the highest in summer 97° in the shade; and that, in the latter season, the thermometer usually stood at 6h. A. M. at about 80°, and at 3h. P. M., between 85° and 95°.

From December, 1820, to March, 1821, the hottest season in Chile, almost daily observations at Santiago, in latitude 33° 27' S., between 1h. and 2h. P. M. in the shade, produced a mean of 84° 50', and at 10h. P. M. of 58°, with very few exceptions, and variations from these points. On a particularly hot day, the thermometer rose to 95°. The cool breeze begins to blow at about 3h. P. M., and in the morning, a somewhat raw sensation of coolness seldom is taken before 10h.

By comparing the above observations with some made at Mendoza within the same period, the heat was found to have been about 6° greater in the latter place, which is nearly under the same latitude as Santiago, may stand rather lower than higher, and gains of the rising sun over the last city, what this does over Mendoza of its setting.

It was intended to offer here comparative results of observations in the latitude below Cape Horn, usually tracked by vessels on their passage round it, and within the same degrees in the northern seas; but I have not been able to collect a sufficient number of them for that purpose.

It is said that the establishment of a Scientific Society is in contemplation at Mendoza.

The English Gentleman at Guasco, in whose possession I found specimens of the rock mentioned in the 2d and 6th Chapters of this Work, is Doctor Seward; to whom I have taken the liberty to write twice on the subject, with the request, that he would avail himself of an opportunity for sending some to England, showing the series of its apparent transitions.

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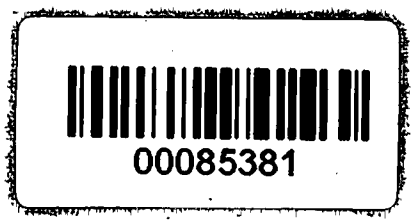
DIRECTIONS TO BOOKBINDERS FOR PLACING THE PLATES.

		Page
No. I.	to face	8
Itineraries. To begin with North Road from Buenos-ayres		130
II.		137
Plan of the Post Road		145
III. IV.		147
V.		150
VI.		164
VII.		174
VIII.		175
IX.		205
X.		206
XI.		222
XII.		239
XIII.		240
XIV.		251
XV.		268
XVI.		266
XVII.		272
XVIII.		278
XIX.		300
XX.		301
XXI.		310
XXII. XXIII.		311
XXIV. XXV.		321
XXVI. XXVII. XXVIII. XXIX.		349
XXX. Not executed.		
XXXI.		349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